CONSUMER PROTECTION
FOR RETAIL ELECTRIC COMPETITION

A REPORT TO THE
MISSOURI PUBLIC SERVICE COMMISSION'S
TASK FORCE ON RETAIL ELECTRIC COMPETITION

FROM
THE PUBLIC INTEREST PROTECTION
WORKING GROUP

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TABLE OF CONTENTS

CHAPTER I

INTRODUCTION & EXECUTIVE SUMMARY

The Public Interest Protection Working Group has considered the potential impact of retail electric competition on Missouri consumers and is presenting this report to the Missouri Public Service Commission's Task Force on Retail Competition. The report is divided into six chapters addressing: Consumer Education; Consumer Protection; Universal Service; Competitive Issues; Distribution System Integrity and Environment Protection. In some areas we have raised issues for the task force's consideration, in others we have made specific recommendations.

It is important to note that this report deals with consumer impacts associated with retail electric competition. Since the poolco model described in the market structure and market power working group report is not a retail electric competition model, our discussion and recommendations are not relevant to that model. Since the poolco model has no effect on consumer choice, the existing regulatory framework can adequately handle consumer protection issues as they arise during the regular course of business.

The Public Interest Protection Working Group has adopted the principle that electric service is essential to the health and welfare of Missouri citizens. All Missouri consumers, including high-risk consumers should have access to a basic level of affordable and reliable electric service at just and reasonable rates. With this principle in mind, we have addressed six areas that must be carefully considered if it is determined to be in the public interest to initiate retail electric competition.

In the chapters addressing Universal Service and Environmental Protection we refer to "public goods or benefits." Public goods are defined as things that will not be produced and delivered solely by the free market. They are "public" because they are consumed by the public and their use cannot be restricted to the benefit of a single buyer or group of buyers.

Public goods produce a value to society at large.[1] The Public Interest Protection Working Group recommends the consideration of a public benefits charge to fund low-income programs and energy efficiency measures.

EDUCATION

The Public Interest Protection Working Group believes it is imperative that a consumer education plan begin immediately. Consumers are barely aware that the restructuring debate is taking place. The public interest requires that they be brought into the discussion as soon as possible.

Consumers must be educated now about proposals to initiate retail competition and they must be educated on their choices, rights and responsibilities once specific legislation has been enacted. Finally, there must be an ongoing education campaign to ensure a reliable source of information so consumers can exercise informed choices.

A comprehensive objective consumer education program will be a monumental task requiring a large commitment of resources. The Public Service Commission (PSC) should oversee this effort with full participation by all stakeholders.

The Public Interest Protection Work Group makes the following recommendations:

- The PSC should develop an educational task force immediately to focus on the need for consumer education now. The task force should be made up of representatives from the PSC, Office of Public Counsel, Division of Energy, public interest groups, low income advocacy groups and industry.

- Assign this educational task force the responsibility to develop a consumer education plan to explain the Retail Electric Competition Task Force Report.

- Once the transition to restructuring begins, a consumer education plan should be implemented using the same collaborative approach to address the ongoing information needs of the consumer.

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[1] Stranded Benefits In Electric Utility Restructuring by National Council on Competition and the Electric Industry, 1996.

CONSUMER PROTECTION

If consumers are to be comfortable with the new environment, they must be confident that they will be better off (or at least no worse off) in a restructured industry. Consumers now have the protection of the rules related to billing and payment standards, meter reading standards, deposit and credit standards, disconnection standards, cold weather protections and dispute resolution procedures. These protections must be continued and must apply to all service providers.

In addition, lessons can be learned from the lack of adequate consumer protection in the telecommunications area that has been experienced as a result of deregulation. Consumers must be protected from unfair market practices, unconscionable service contracts, unauthorized switching, mislabeling, pyramid schemes and other scams. Strong consumer protection rules aimed at market abuse and unfair business practices must be enacted.

Adequate licensing requirements must be in place for new entrants, consumer privacy must be protected and the Missouri Public Service Commission must have in place an adequate system to resolve consumer disputes. Finally, the Public Service Commission should have adequate enforcement powers to ensure compliance with consumer protection rules. Currently, the PSC's enforcement powers are wholly inadequate to protect consumers in a competitive market.

The Public Interest Protection Working Group makes the following recommendations to address consumer protection:

- Evaluate the appropriateness of the current consumer protection rules, strengthen them where necessary and make them applicable to all REPs. A strong focus should be placed on preventing marketing abuse.

- Develop a program of licensing that will provide some assurance to the consumer of the supplier's financial stability and ability to provide quality service.

- Establish consumer privacy protections. The PSC should protect the confidentiality of consumer billing and payment records and prohibit the release of information without the consumers' written consent.

- Provide protection to ensure that quality of service is maintained at existing levels.

- Assign responsibility for dispute resolution to the Public Service Commission and require the development of procedures to facilitate this. It will also be important to include these procedures in consumer education efforts.

- The PSC should be granted specific enforcement powers. Authority should be given to directly impose fines, penalties and to revoke licenses.

UNIVERSAL SERVICE

All consumers including high-risk consumers should have access to a basic level of affordable and reliable electric service at just and reasonable rates. Since it is not at all clear that all consumers will have a choice of providers or reliable service at affordable and reasonable rates upon the initiation of retail competition, the Public Interest Protection Working Group recommends that at all times a basic service provider must be in place to serve consumers who do not choose an alternative supplier and those who do not have a choice. Although there are several approaches for assigning this responsibility to provide basic service, the Public Interest Protection Working Group recommends that the local distribution utilities (LDU) act as an agent for its non-choosing customers and perform the basic service obligation, at least during the transition period. We recommend that a mandated rate reduction or rate cap be explored in conjunction with the basic service offered during the transition period.

The Public Interest Protection Working Group recognizes that there are many consumer protection issues associated with metering and billing, but we believe that during the transition, it is reasonable (if feasible) for the LDU to perform the metering and billing function to avoid customer confusion.

Finally, the Public Interest Protection Working Group supports the implementation of a cost effective low-income program and we recommend that the PSC have authority to implement a percentage of income plan coupled with an arrearage forgiveness program and weatherization plan to be funded by a non-bypassable distribution charge.

The Public Interest Protection Working Group makes the following recommendations:

- A basic service provider must exist to serve those that do not choose an alternative REP and for those with no competitive choice.

- The responsibility to provide basic service should be placed on the LDU during the transition to retail competition.

- A rate reduction or a rate cap on basic service during the transition should be explored.

- The LDU should provide metering during the transition.

- A cost effective low income program should be established in the form of a percentage of income payment plan, arrearage forgiveness plan and weatherization plan.

- The low income program should be funded by a non-bypassable distribution charge.

COMPETITIVE ISSUES

Retail competition must bring benefits to all consumers in the form of choice and lower rates. Accordingly, the mood toward competition must be devoted to that goal.

The Public Interest Protection Working Group makes the following recommendations:

- The implementation of retail competition should proceed only if it can be shown to benefit all consumers and should be phased in consistent with this goal.

- Regulation must continue for services that are not subject to full and fair competition. The PSC must manage the transition to full and fair competition by preventing anti-competitive conduct.

DISTRIBUTION SYSTEM INTEGRITY

With the implementation of retail electric competition, it is in the public interest that safety and quality of service be maintained and that job loss be kept at a minimum.

The Public Interest Protection Working Group makes the following recommendations:

- The PSC must ensure that present safety levels are maintained.
- The quality and reliability of electric service must be maintained.
- Workers subject to downsizing should be given the opportunity to re-enter the job market.

ENVIRONMENTAL PROTECTIONS

While the environment impacts of restructuring of the electric utility industry are unclear, the Public Interest Protection Working Group has identified a number of areas of potential concern or exposure. In addition to preserving current environmental regulations, restructuring should support energy efficiency, standard public disclosure, clean energy resources and research and development.

The Public Interest Protection Working Group makes the following recommendations:

- Existing environmental standards must be preserved and protections against noncompliance in meeting current or future standards must be ensured.
- Adequate protection for the proper closure and decommissioning of generation facilities must be ensured.
- Public benefit programs that address clean renewable resources, energy efficiency and research, development and demonstration of new technologies should be encouraged.
- The feasibility of a state funding mechanism such as a non-bypassable distribution fee for these public benefit programs should be investigated.
- Support informed consumer choice by requiring standard public disclosure of generation resource mix and emissions.
- Encourage research and development and evaluate the feasibility of the expansion of renewable resource technology in Missouri. Within this evaluation, consider the potential for a renewable requirement within the portfolio of the retail electric provider.

CHAPTER II

CONSUMER EDUCATION

Retail electric competition will have a dramatic effect on consumers. While a lively debate continues among industry members and policy makers, consumers are barely aware that such a debate is even taking place. Consumers must be participants in the process. The public interest requires that an effective consumer education campaign begin immediately.

STAGES OF EDUCATION

There will be three distinct stages in the education process. First, the public must be informed now what restructuring may mean to them so that they can participate in the debate. Then, once specific legislation has been enacted, there will be a need to communicate and explain the provisions of it. The industry will be going through a transition phase and the consumer will need assistance in dealing with these changes. Finally, it will be important to provide an ongoing source of information that the consumer can trust and depend on over time as competitive markets develop and evolve.

TASK OF EDUCATING

Clearly, developing an effective consumer education program to explain the complex issue of electric utility restructuring will require a well thought-out organized approach. It will be important to first explain to consumers why they should learn about restructuring and what factors are at stake. Technical issues like reliability, service quality and the economic stability of the supplier will need to be translated into information that is useful to the typical consumer.

Consumer educators will need to work with and through community groups, as well as other state, city and local agencies. The focus should be placed on residential and commercial consumer education. Also segments within these classes (such as low income & rural customers) and other specific groups such as the media and the legislature should be targeted.

The task of educating the public about the changing utility environment will be more of an art than a science. However, as the "public" is identified and divided into market segments, the most effective methods of reaching various groups can be determined. Existing sources of information and their effectiveness need to be identified. Methods of reaching a target audience can include alternatives ranging from brochures and public service announcements to web sites and recorded messages on 1-800 numbers. The most effective comprehensive program will probably include a number of different methods to communicate with the public.

INFORMED CHOICE

An essential component of the successful working of the competitive market is consumer access to a source of information on choice that is accurate, timely and objective. Consumers must be able to make informed choices within this competitive market, if they are to reap any of the potential benefits of competition. Under the worst scenarios, if they are unable to access objective comparative information, they may be taken advantage of.

Deregulation in the telephone industry teaches some lessons that may be applicable to the electric industry. The lack of a coordinated education campaign in the telecommunications industry has led to misinformation, consumer confusion and numerous dinner-time marketing phone calls. We must assure that consumers have unbiased, accurate timely information well before the implementation of "choice." Consumers must be educated to be smart shoppers.

Consumers will require access to an unbiased market- neutral source of information on issues such as price, quality of service, stability of providers, and risks associated with alternatives. Consumers may also desire information on other topics such as conservation and low income assistance programs and should be directed to specific agencies that are coordinating the funding and administration of these programs. Without a readily available objective source, consumers are left to rely solely upon information received from marketers trying to sell specific products.

COLLECTION OF DATA AND FUNDING

The Public Service Commission should collect and make available relevant information. Methods of collecting and reporting data must ensure accuracy, integrity and timeliness. The retail electric providers (REPs) should have a legal requirement to submit specific data that can be useful for comparisons within specified time frames. There needs to be a penalty and enforcement provision associated with the requirement to submit the data. This could be tied into the licensing procedures that will most likely be put in place. In addition, there may need to be an auditing or surveillance function to ensure the accuracy of the reported data.

Adequate funding must be established to fund consumer education. The budgets for consumer education programs have varied widely throughout the country, ranging from a high of $89 million for California's Customer Education Program to a low of about $630,000 for Vermont's Consumer Information and Education Plan.[2] A number of factors such as the number of customers and the methods of communication will dictate the necessary size of the budget. Alternatives for the actual funding mechanism will also need to be examined.

RESPONSIBILITY

The responsibility for overseeing a comprehensive objective consumer education program needs to be assigned to an agency that has experience with the industry and who has the capability to collect and maintain industry data. The Legislature will need to determine an agency to hold primary responsibility for the coordination and provide funds for these efforts. The Public Service Commission appears to be the most likely candidate to coordinate these efforts and should work with the investor owned utilities, municipals and cooperatives to develop uniform methods to communicate with the public. However, the education process should be a collaborative effort between a number of parties.

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[2] Michigan Public Service Commission, Case No. U-11290, Electric Restructuring, Customer Focus Issues and Recommendations

This collaborative effort should provide ongoing direction and support to the agency designated with the primary responsibility for the collection, maintenance and distribution of information. Public interest groups should be encouraged to strengthen their own efforts in providing consumers with information that may contain a particular focus or message.

RECOMMENDATIONS

The discussions presented earlier have been necessarily brief and limited regarding the importance of consumer education and the priority it should be given in any discussion of restructuring. The specific needs and methods of consumer education will require a focused assessment before a strategy can be developed that will be responsive, effective and efficient. With this in mind, the Public Interest Protection Working Group makes the following recommendations with respect to consumer education:

- The PSC should develop an educational task force immediately to focus on the need for consumer education now. The task force should be made up of representatives from the PSC, Office of Public Counsel, Division of Energy, public interest groups, low income advocacy groups and industry.

- Assign this educational task force the responsibility to develop a consumer education plan to explain the Retail Electric Competition Task Force Report.

- Once the transition to restructuring begins, a consumer education plan should be implemented using the same collaborative approach to address the ongoing information needs of the consumer.

These recommendations are designed to encourage the Retail Electric Competition Task Force to recognize the importance and the critical need for consumer education even before the consumer is faced with making decisions.

CHAPTER III

CONSUMER PROTECTION

If consumers are to be comfortable with the new competitive environment, they must be confident that they will be better off (or at least no worse off) in a restructured industry. At a minimum, existing consumer protection rules must be retained.

EXISTING PROTECTIONS MUST BE RETAINED

Under the present system, the Missouri Public Service Commission has exercised its authority over electric utility price and services and has developed a comprehensive framework of consumer protection, regulations and policies. The Commission has promulgated rules addressing: quality standards; safety standards; billing and payment standards; meter reading standards; settlement agreement provisions; deposit credit and late payment standards; discontinuance of service standards; restriction on service disconnection during cold weather; dispute resolution requirements and consumer complaint procedures. These rules must continue and must apply to all service providers under a restructured environment.

The PSC does not presently have jurisdiction over municipal utilities and cooperatives. These groups have developed their own billing standards modeled after the PSC rules. The same rules should apply to all LDUs under the restructured environment.

ADDITIONAL PROTECTIONS WILL BE REQUIRED TO PREVENT MARKETING ABUSES

The Public Service Commission must respond with new and innovative approaches to the challenge of consumer protection under competition. The new scenario will emphasize little price regulation of retail electric source and low barriers to entry for new firms. Present rules must be evaluated and strengthened to maintain consumer protection in a restructured environment.

The average consumer neither understands the full extent of the change to competition nor is ready for drastic change. Electricity is a necessity, not an option, and mistakes in the provision or disconnection of power can cost lives. Increased protections may be necessary in many areas and should not be ignored because of claims that competitive markets won't tolerate increased consumer protection regulations. Many other specialized but competitive businesses continue to operate under some type of regulation because of the highly technical nature of their businesses or the potential harm that could come to consumers without sufficient oversight. Examples of such industries include the banking and credit and life insurance industries. Therefore, there is precedent in other established industries for implementing strong consumer protection rules without creating barriers to entry or hampering the competitive market.

Electric consumers may be faced with a variety of choices. While benefits may be gained from choice, consumers could become confused and fall prey to unscrupulous business practices. Marketing efforts of REPs are likely to increase significantly as unbundling occurs and as purchase options increase. Existing regulations and consumer protection laws may not adequately address unfair marketing practices, unconscionable service contracts, unauthorized switching of providers, unauthorized provision of additional services, mislabeling and pyramid schemes. The Commission must have clear authority to enact new consumer protection regulations to address these issues. Strong consumer protection rules aimed at marketing abuses and unfair business practices will minimize confusion, identify trends, and target consumer abuse. These protections should permit timely prevention, mediation and enforcement.

LICENSING

All REPs should be required to be licensed by the PSC to do business in the State. At a very minimum, licensing should require the disclosure of relevant information to the Commission and the public. Relevant information should include such information as the REPs' legal name, business address, telephone number, proof that it is authorized to do business in the state, reasonable consumer access including a toll-free customer service

contact, evidence of financial soundness, evidence of technical and operational ability, the services being provided, disclosure of civil, criminal, or regulatory sanctions imposed against the company, if any, generation resource mix, generation emissions, and a willingness to abide by the PSC's rules and codes of conduct. Licensing should require certain codes of conduct, such as prior written notice to consumers in plain language of terms and conditions of service as well as compliance with PSC rules regarding billing, collection, deposit, credit, disconnection, marketing and disclosure requirements.

A licensing process should include a brief time frame (such as 60 days)for verification of the information. PSC rules should specifically allow for the imposition of penalties or the revocation of a firm's license if the information is found inaccurate or if a regulatory requirement is not met. A bonding requirement should be imposed to help prove the firm's financial soundness and to assure a source of compensation to individual parties if the need arises.

PRIVACY

Although information about consumers such as energy consumption and time of usage may be useful to competitors for marketing purposes, consumers should have reasonable privacy protections and should have an expectation that their billing and payment records and other information collected by the REP and LDU is confidential. Consumer privacy should take precedence over industry marketing concerns.

Accordingly, the consumer should authorize, in writing, any release of information to designated REPs. Written permission should be required for basic information such as the customer's name, the billing address, the telephone number, the account number and customer specific historic metered usage.

QUALITY OF SERVICE

Consumers must be assured that the quality and reliability of service is maintained at existing levels during the transition and after the implementation of restructuring. The PSC should have clear authority to impose quality of service performance standards, as required,

related to service interruption, trouble reports, response to customer inquiries, and other standards that will permit the PSC to measure any denigration of service. This information should be retained at the PSC and made available to the public upon request.

Although the PSC currently monitors quality of service, those efforts need to be enhanced to ensure that a LDU does not engage in unreasonable cost saving measures to generate additional dollars to be invested in competitive ventures at the expense of the regulated distribution business.

DISPUTE, RESOLUTION AND ENFORCEMENT POWERS

Concurrent with an effective consumer education and outreach program, that informs consumers of their rights and responsibilities under a restructured environment, consumers must be provided a neutral forum where disputes can be resolved in an inexpensive and timely manner. The PSC should continue and enhance its informal and formal complaint resolution procedures. These procedures should be made known to consumers so that they will feel comfortable seeking resolution as well as be confident that there is an independent entity who will assist in resolving their complaint.

The PSC should have clear and unambiguous authority to expeditiously investigate and enforce compliance with consumer protection rules and requirements. Currently PSC enforcement authority is weak. The PSC has no independent authority to levy penalties or fines on a company that abuses Commission rules. In order to impose penalties on violators, the PSC must adjudicate a complaint proceeding and make a finding that the company has violated a Commission rule or order. Once the PSC makes a finding after hearing that a utility is in violation, if the PSC believes that penalties are in order, it must direct the PSC's General Counsel to file a penalty action in Circuit Court. This is inefficient, results in excessive litigation and delays justice.

To ensure adequate enforcement of Commission rules the PSC should have the ability to hold a hearing and upon making the appropriate finding, have the ability to directly impose fines, penalties and revoke licenses where such fines, penalties and revocations are required by the public interest.

RECOMMENDATIONS

The prior discussion attempts to touch upon the importance of critically examining the consumer's exposure in the competitive market and taking steps, where appropriate, to address existing rules and the need for additional protections. With these issues in focus, the Public Interest Protection Working Group makes the following recommendations:

- Evaluate the appropriateness of the current consumer protection rules, strengthen them where necessary and make them applicable to all REPs. A strong focus should be placed on preventing marketing abuse.

- Develop a program of licensing that will provide some assurance to the consumer of the supplier's financial stability and ability to provide quality service.

- Establish consumer privacy protections. The PSC should protect the confidentiality of consumer billing and payment records and prohibit the release of information without the consumers written consent.

- Provide protection to ensure that quality of service is maintained at existing levels.

- Assign responsibility for dispute resolution to the Public Service Commission and require the development of procedures to facilitate this. It will also be important to include these procedures in consumer education efforts.

- The PSC should be granted specific enforcement powers. Authority should be given to directly impose fines, penalties and to revoke licenses.

CHAPTER IV

UNIVERSAL SERVICE

Electric service is essential to the health and welfare of the citizens of this state. All consumers, including high-risk consumers, should have access to a basic level of affordable and reliable electric service at just and reasonable rates. This commitment must continue to be made to electric consumers during and after the transition to the competitive provision of electric generation service.

While competitive markets maximize economic efficiency, they do not necessarily maximize equity. From a public policy perspective efficiency and equity are both important public goals that must be reconciled. Under the utility regulation model, services are cost based, provided on a nondiscriminatory basis and rates must be just and reasonable. Consumers have learned to expect universal reliable service at uniform, affordable, and stable rates. In a pure profit maximizing competitive market low volume, low-load factor consumers may be subject to unacceptably high rates or worse, no entity may seek to serve them at all. Pure efficiency invites price discrimination; the most captive consumers will be charged the highest rate.

If it is deemed to be the public policy of this state to move toward retail competition, small users of electric services must be protected and assured that they will receive affordable reliable service and will have the opportunity to benefit from retail competition. At a minimum, the consumers must be assured that they will be no worse off under competition then they are under the present system.

BASIC SERVICE OBLIGATION

In order to protect consumers we must ensure that a provider exists to serve all consumers. There are three categories of consumers that will need this protection:

1) those who do not choose an alternate supplier;
2) those who have no competitive choice because they are viewed as high-risk customers or no one chooses to serve them; and,

3) those who have chosen a supplier but for some reason the supplier fails to serve them or goes out of business.

All three categories need Universal Service protection for different reasons. The first group of consumers may not choose an alternate supplier because of hesitancy to move into the world of competition, lack of understanding about choices, resistance to change, or just fear of the unknown. Thus, it is important to provide a stable service without significant price fluctuations while consumers educate themselves and become comfortable with choice. Universal Service protection for the first group of customers may only be required on a transitional basis as consumers become familiar and begin to participate in the new market. For the other two groups of consumers, however, Universal Service protection must continue indefinitely so that all consumers have access to electricity. As a matter of public policy it is universally recognized that continuous electric service is an essential need for all citizens. Whether access to Universal Service is for a transitional period for those consumers who do not make a choice at the outset of competition or for high-risk, or deserted consumers, it can be provided by a requirement that there always be a provider of basic service.

RESPONSIBILITY

One issue to be resolved is, what entity has the responsibility to provide basic service. There are several approaches:[3]

1) The LDU would provide basic service at spot market prices to its distribution customers who do not choose an alternate provider;

2) All customers would receive ballots and those that do not choose would be randomly assigned to the REPS that are licensed to provide service in the market;

3) The LDU would act as an agent for its customers who do not choose an alternate provider. The LDU would bid for retail suppliers to serve those customers. The terms of the bidding process would be regulated by the

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[3] For a discussion of the basic service obligation *see* Consumer Protection Proposals for Retail Electric Competition: Model Legislation and Regulations, Barbara R. Alexander and the National Consumer Law Center, 1996.

Public Service Commission and the actual cost of electricity charged by the winning bidder would be passed through to the consumer;

4) The Public Service Commission would act as the consumer agent and perform the bidding function;

5) A local government would take on the responsibility of providing basic service for those of its citizens that do not choose an alternate supplier.

The Public Interest Protection Working Group recommends the third alternative during the transition period. This approach would provide the most stability to consumers, but would also enable them to learn about the competitive market. Once the transition period ends, it may be appropriate to examine balloting or some other approach to meet the basic service obligation.

PRICE REGULATION

Another issue to be addressed is whether there should be any regulatory control over the basic service price during the transition. Some states cap the rate or require a rate reduction during the transition to retail competition. Since the focus of moving to a competitive market is on the promise that greater efficiencies will result in lower rates, it would seem reasonable that at least during a transition, consumers should reap the benefit of this promise and enjoy reduced rates. This would also have the benefit of providing consumers with stable service without significant price fluctuations and give them a benchmark to determine if competitive providers can beat the price they are paying under traditional regulation. So long as protections are in place to protect the financial integrity of the distribution company the Public Interest Protection Working Group recommends that the implementation of rate caps or rate reductions during the transition period be explored.

METERING AND BILLING

Under any of the proposals, it must be determined who will have the responsibility to provide metering services and billing and collection services. It is conceivable that the REP

will bill separately for electric generation services, while the distribution company will bill separately for distribution., metering and other customer services. Because of customer confusion, it may be reasonable during the transition for the LDU to provide metering and billing and collection services. Permitting the consumers to clearly understand the ability to choose among generation suppliers without multiple and confusing bills may be the best way to move toward competition.[4] Once consumers are comfortable with comparing prices and choosing a REP, the next step toward competition may be separate metering, billing and collection options.

PUBLIC BENEFITS

In addition to the requirement that there always be a provider of basic service, Universal Service protections that currently exist must be continued and perhaps expanded. At the present time utilities engage in programs that are designed to maintain continuous affordable service. These protections are aimed at helping customers continue to receive essential electricity service. The costs associated with the cold weather rule, deposit rules, general disconnection rules, flexible payment arrangements and bad debt customer service expenses are presently embedded in utility rates. These are often called "public goods or benefits" and many jurisdictions have declared that public benefits should be retained and in some cases expanded. All providers should be subject to the cold weather rule, deposit rules, disconnection rules and other consumer protection rules promulgated by the Commission.

LOW-INCOME PROTECTION

In the State of Missouri, it is important that the Public Service Commission be given the clear authority to establish and design a cost effective, low-income program. The Commission should have the authority to establish a percentage of income payment plan

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[4] There may be technical and information system difficulties associated with requiring some LDUs to perform billing for the REPs. This issue needs to be explored.

coupled with an arrearage forgiveness plan and a weatherization plan in order to establish a program that provides incentives to encourage payment, reduce collection efforts and bad debt expenses. The program should provide assistance targeted to the most needy consumers. The LDU, as well as all retail energy providers should be required to participate in low-income programs established by the Public Service Commission.

Finally, any legislation should permit and recognize that the State's purchasing power could be used to negotiate discounts by leveraging its purchasing power to include LIHEAP eligible households in its contracts.

FUNDING

A mechanism needs to be established to adequately fund low-income programs especially in a competitive environment. Low-income programs may be funded by a non-bypassable charge to be paid by all distribution customers (a public benefits charge) or all suppliers could be assessed an amount based upon their intrastate revenues. The Public Interest Protection Working Group recommends a non-bypassable distribution charge.[5] An independent entity should be established to administer the fund.

RECOMMENDATIONS

This discussion addresses the principle that all consumers are entitled to have access to a basic level of affordable and reliable service at just and reasonable rates. The Public Interest Protection Working Group makes the following recommendations:

- A basic service provider must exist to serve those that do not choose an alternative REP and for those with no competitive choice.

- The responsibility to provide basic service should be placed on the LDU during the transition to retail competition.

- A rate reduction or a rate cap on basic service during the transition should be explored.

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[5] For a discussion of the need for low-income programs *see* Structuring A Public Purpose "Distribution Fee" For Missouri by Roger D. Colton, 1997.

- The LDU should provide metering during the transition.

- A cost effective low income program should be established in the form of a percentage of income payment plan, arrearage forgiveness plan and weatherization plan.

- The low income program should be funded by a non-bypassable distribution charge.

CHAPTER V

COMPETITIVE ISSUES

The Missouri Public Service Commission's Task Force on Electric Industry Restructuring, Public Interest Protection Working Group supports a cautious approach to electric restructuring for Missouri. Retail restructuring should be completely within the control of the state. By recognizing the preeminence of *consumer choice* and *benefits,* a transition to competition will require an understanding of the complexities that accompany such a move.

RETAIL COMPETITION MUST BRING BENEFITS TO ALL CONSUMERS

Retail competition is being promoted by holding out the promise of more choices, more services, and lower rates for all consumers. Policy makers should be convinced that this promise will be fulfilled before plunging headlong into retail competition. Several of the states in the forefront of restructuring are those that have comparatively high rates such as California and the northeastern states. "High cost" states will have the most obvious cost advantages as a result of restructuring. Others, including Missouri, are less convinced of the need to rush into change and are taking a more cautious approach. Retail competition in Missouri, where rates are below the national average, could result in higher rates for Missouri consumers.

Missouri should transition to a competitive electricity market in a manner that maximizes benefits to consumers. In the regulated market consumers have been able to depend upon reliable, low cost, and accessible electric energy. To the extent retail competition is available, all classes of consumers should be able to choose their REP.

FLASH-CUT vs. PHASE-IN

How fast Missouri makes a transition to retail competition depends on several factors. Among them are: the ability of the existing infrastructure to support competition; the establishment of a truly competitive market ; the ability of consumers to understand their new

opportunities and responsibilities; and the definition of the government's role in protecting consumer interests. These factors should all be carefully considered in determining the appropriate transition time to competition.

A staged phase-in is the most cost effective and reasonable approach. All classes of customers should participate equally at each phase, with the entire state moving forward together.

Through the transition, a legislative or regulatory advisory committee including all stake-holders should continually evaluate the process. These stake-holders should include representatives of industry, government and consumers. The Public Service Commission should continue in its regulatory role to monitor the transition and all stakeholders should be involved in the process.

WORKABLE COMPETITION REQUIRES A REALISTIC CHOICE OF SUPPLIERS

The attraction to a restructured electric industry is increased consumer choice along with lower prices. A truly competitive market should be superior in economic efficiency to a regulated market and consumers as a whole should recognize both cost efficiency benefits and increased service options. In order to realize maximum benefits from electric industry restructuring, there must be effective competition in all markets and all customer classes. Competition cannot be decreed, it must, instead, evolve as participants decide it is in their interest to enter the market and consumers are in a position to make informed choices.

Regulation will continue to be necessary to protect consumers. The PSC will need to manage the transition to competition and establish rules and codes of conduct to prevent market power abuse, cost shifting to consumers who lack competitive alternatives and anti-competitive conduct.

METER OWNERSHIP

Although this issue may appear to be more related to Market Power and Reliability, how restructuring defines market responsibilities with respect to meter "ownership" may affect consumer choice. The owner of the metering hardware will naturally have the market advantage of direct access to customer demand information. Whomever controls the metering must be regulated in a manner to prevent them from impeding competition through unfair control of information or information gathering equipment.

Metering and billing costs should be unbundled from the transmission and distribution costs, and from each other. Metering and meter reading should remain regulated and provided by the LDU. It should be the LDU's responsibility to provide accurate and timely consumer data to all parties authorized to receive such information by the MPSC. This would not preclude consumers from selecting from multiple metering options, with multiple fee structures, to best meet their needs or the requirements of their retail electric provider. This proposal provides consistent and accurate data to the independent system operator (ISO) and the market. It enhances competitive markets by making consumer switching easier. In addition, this method minimizes consumer confusion, potential fraud, safety concerns, and infrastructure redundancies.

To the extent that controls must be in place to prevent fraud and provide for system reliability and safety we must tightly control the interface between the LDU, the customer, and the REP. The equipment, its use and its cost must be such that any customer can have access to any product available regardless of customer class.

RECOMMENDATIONS

Retail electric competition should proceed cautiously. The Public Interest Protection Working Group recommends:

- The implementation of retail competition should proceed only if it can be shown to benefit all consumers and should be phased in consistent with this goal.

- Regulation must continue for services that are not subject to full and fair competition. The PSC must manage the transition to full and fair competition by preventing anti-competitive conduct.

CHAPTER VI

DISTRIBUTION SYSTEM INTEGRITY

Electricity is provided to consumers through an integrated network that physically ties together the generation, transmission and distribution networks. Problems with system reliability on any piece of the network often cannot be isolated to individual utility systems or to a specific consumer. Reliability difficulties on a particular part of the system can often have far reaching effects. Therefore, it is critical that every part of the network continue to be operated and maintained with an emphasis on safety and reliability. Consumers have enjoyed the benefits of a highly dependable system. It is essential under any market structure to assure that this reliability is not degraded.

The larger issue of network reliability is being addressed by the Working Group on Reliability. However, the Working Group on Public Interest Protection has several concerns regarding the reliability of the distribution system under a restructured environment. These concerns are in the area of safety, quality of service and worker job loss. The level of service that consumers currently experience should be maintained or improved as a condition of deregulation.

SAFETY

In a competitive environment, the LDU will still have responsibility for the distribution system and will continue to be regulated under the jurisdiction of the Missouri Public Service Commission. However, there may be incentives to reduce costs in areas that could affect safety considerations in order to generate dollars to be used for affiliated ventures.

The Missouri Public Service Commission, as well as the appropriate safety organizations, should continue to closely monitor the ongoing practices of the LDUs to assure both the safety of the worker and the general public. Attention should be focused upon these practices to assure that present safety precautions are continued and, if the need is identified, are improved upon.

RELIABILITY AND QUALITY OF SERVICE

To aid in the assurance that the quality and reliability of electric service now enjoyed by the citizens of Missouri is not diminished in an unregulated market, standards for reliability and system maintenance may need to established. These reliability standards may include a regular reporting of outage data under a series of indexes such as the system average interruption duration index (or SAIDI).

If reliability standards are developed, the state Public Service Commission should have the authority to establish and directly impose meaningful penalties and/or sanctions upon any local distribution utility which is found to be in violation of standards of quality or reliability of service.

The effective completion of maintenance activities will continue to be a concern to assure a safe, reliable system. These areas should continue to warrant review and examination by the Public Service Commission.

WORKER/JOB LOSS PROTECTION

The electric utility industry has already begun to adjust the structure and size of its companies to deal with the anticipated changes that will accompany their transition into a competitive market. One of these changes seems to frequently include a downsizing of the levels of its employees. Provisions should be considered to ensure the retraining and/or job rehabilitation of electrical workers who may become displaced due to the restructuring of the industry. Special care should be taken to prevent the loss of job skills necessary to perform the proper maintenance, inspection, and construction of electrical systems. Training programs, including employer financed college courses, should be offered to any employee displaced because of restructuring. Those employees who are unable to fulfill the requirements of participating in such courses should be given training in areas where their abilities and skills allow or to be otherwise rehabilitated to reenter the job market.

RECOMMENDATIONS

- The PSC must ensure that present safety levels are maintained.
- The quality and reliability of electric service must be maintained.
- Workers subject to downsizing should be given the opportunity to reenter the job market.

CHAPTER VII

ENVIRONMENTAL PROTECTIONS

The Public Interest Protection Working Group believes that above all, in a restructured utility industry, consumers must be no worse off than they are under the current regulatory environment. In addition to preserving and reinforcing current environmental regulations, restructuring should support energy efficiency, standard public disclosure, clean energy resources and research and development.

ENVIRONMENTAL STANDARDS

Existing environmental standards must be preserved and compliance with these standards ensured. Without the certainty of cost recovery for environmental controls in a competitive market, the pressures to compete by providing low-cost energy increases the risk of default in meeting current or future environmental standards. Future environmental regulations could include more stringent regulations placed on currently regulated pollutants and restrictions placed on thus far unregulated pollutants, such as carbon dioxide and air toxics. To provide appropriate environmental protection in a restructured market, statutes and budgets may need to be revised or expanded while others may need to be modified so that market forces can serve to protect the environment.

The generation of electric energy is a major contributor to some of the environmental problems we face today. Air, water and waste pollutants produced as a product of electric generation are regulated under the Clean Air Act, The Clean Water Act and the Resource Conservation and Recovery Act.

The environmental impacts of restructuring of the electric utility industry are unclear. There could be increased emissions from old coal-fired generation facilities, particularly in the Midwest. These plants are often inexpensive to run because all of their capital costs have been paid and they have generally not been required to meet the same pollution-control requirements as new plants. Under competition, retail electric providers will have the opportunity to increase profits by selling their power to customers in higher cost regions.

Adequate protection for the proper closure and decommissioning of generation facilities needs to be ensured. Only power plants that can generate electricity at competitive prices will survive in an open market. If competition results in the abandonment of generating facilities, proper closure needs to be conducted to remove potential threats to environmental quality. The cost of decommissioning nuclear generation facilities is likely to exceed original projections, particularly when federal policy for radioactive waste storage remains unresolved. For plants that are economically marginal, there will be pressure to cut costs, which could have serious implications for human health, safety and clean-up. The Nuclear Regulatory Commission attributed safety problems at the closed Maine Yankee nuclear plant to "economic pressure to be a low-cost energy producer."

ENERGY EFFICIENCY

Energy efficiency programs contribute to the environmental quality of the state by eliminating waste in the use of energy. During the transition to a competitive electricity industry, funding for energy efficiency programs is uncertain. To lower their costs during the transition to competition, the utility industry may reduce investments in what have been called "public benefit programs." These programs include energy efficiency, clean energy resources, and research and development of new resources and technologies. There is also discussion of replacing federal appropriations for energy programs (the State Energy Program, Low-Income Weatherization Assistance Program and other efficiency and renewable projects) with a "public benefits charge" or "distribution fee." A number of states have earmarked funding for public benefits programs through a distribution fee on consumers which ranges from .2 to .3 cents per kilowatt-hour.

Missouri spends almost $10 billion per year on all uses of energy, which is approximately 11 percent of total personal income. If Missouri lowers overall energy use through investment in cost-effective, energy efficiency measures and increases the use of alternative or renewable forms of energy, the result will be savings for consumers and an improvement in the overall quality of the environment. A study by the American Council for An Energy Efficient Economy estimates that from 14 to 38 percent of electricity used by

the manufacturing sector could be saved by an orderly change out of equipment at the time of the equipment failure, process modernization or new construction.

The use of more efficient motors, generators and other electrical equipment could boost efficiencies for new fossil-fueled power plants significantly, through technologies such as fuel gasification combined with an advanced gas turbine or fuel cells combined with cogeneration. Potential energy savings from the establishment of building standards for commercial and residential buildings in compliance with the National Energy Policy Act of 1992 could be 12 to 32 percent and 11 to 34 percent respectively.[6] Much of the energy consumption in the residential and commercial sector is for space heating and cooling, water heating, lighting and food storage. Using cost-effective energy technologies, energy consumption could be reduced.

STANDARD PUBLIC DISCLOSURE

In a competitive electric market, the informed consumer has the power to influence investment decisions in energy generation. For consumers to be informed, they need standard and useful information. Full standardized disclosure should include a supplier's generation resource mix and emissions from generation. There are several models that have been developed for energy labels that could be considered.

RESEARCH AND DEVELOPMENT

Research, development and demonstrations of emerging and existing technologies will allow the retail electric providers to continue to improve and to take advantage of the most efficient and economic technologies available. Some fuels that hold potential for a future energy system include hydrogen and fuel cells. These represent sources that are environmentally friendly and have many potential energy uses including powering non-polluting vehicles, heating homes and offices, and fueling aircraft.

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[6] Economic Opportunities through Energy Efficiency and The Energy Policy Act of 1992, Report to the Missouri Legislature Pursuant to House Concurrent Resolution 16, Environmental Improvement and Energy Resources Authority, December 1993.

SUPPORT OF RENEWABLES AND CLEAN ENERGY RESOURCES

Clean and alternative energy resource technologies should be a part of Missouri's present and future electric generation. Renewable resources such as solar, wind and biomass, provide significant environmental benefits. The most abundant renewable resource available to Missouri is biomass, or plant matter. The plant material can come from crop residues (like corn stalks and lumber mill waste), crops grown specifically for energy (like switch grass and fast-growing poplar and willow trees) and municipal solid waste (like paper). According to recent studies of the potential of renewable resources in the Midwest, Missouri has an abundant supply of biomass resources with the potential, using advanced technology, for over 5,000 megawatts of generating capacity at less than 5 cents per kilowatt hour of electricity.[7]

A competitive market may contain barriers to the development of and customers' access to renewable energy sources. These barriers may include competition between new and mature technologies, short-term market pressures to keep initial up-front costs low, market failure to value the public benefits of clean alternative resources, and lack of incentives to continue to support public benefits programs.

During the transition to competition, measures in addition to standard disclosure and research and development may need to be considered to ensure the availability of renewable resources generation. This could include mechanisms such as incentives, tax credits, green power pricing and establishing minimum renewable portfolio standards (RPS) for all energy providers. The option of green power purchases should be available to all Missouri consumers. Market surveys indicate that some consumers are willing to pay a price premium for energy from "green" or renewable resources. Consumers may also be interested in producing their own electricity on-site from distributed technologies such as solar, wind, biomass and cogeneration.

A renewable portfolio standard may provide the necessary support for renewables development in order to achieve new technology commercialization, creation of renewables

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[7] Powering the Midwest:Renewable Electricity for the Economy and Environment, Union of Concerned Scientists, 1993.

industry infrastructure, expansion of fuel diversity levels and enhanced environmental benefits. This helps to ensure that the consumer has a full range of choices, including the option to purchase renewable source generation. An RPS can be structured in different ways, dependent on public policy objectives.

RECOMMENDATIONS

The prior discussion attempts to touch on the importance of critically evaluating the environment's exposure under a restructured electric market. With these concerns in mind, the Public Interest Protection Working Group makes the following recommendations:

- Existing environmental standards must be preserved and protections against noncompliance in meeting current or future standards must be ensured.

- Adequate protection for the proper closure and decommissioning of generation facilities must be ensured.

- Public benefit programs that address clean renewable resources, energy efficiency and research, development and demonstration of new technologies should be encouraged.

- The feasibility of a state funding mechanism such as a non-bypassable distribution fee for these public benefit programs should be investigated.

- Support informed consumer choice by requiring standard public disclosure of generation resource mix and emissions.

- Encourage research and development and evaluate the feasibility of the expansion of renewable resource technology in Missouri. Within this evaluation, consider the potential for a renewable requirement within the portfolio of the retail electric provider.

STRUCTURING A PUBLIC PURPOSE "DISTRIBUTION FEE"

FOR MISSOURI

Prepared For:

Division of Energy
Department of Natural Resources
State of Missouri
Jefferson City, MO

Prepared By:

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July 1997

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Roger Colton (M.A., J.D.) is a principal in the firm Fisher, Sheehan & Colton, Public Finance and General Economics (FSC) of Belmont, MA. In 1995, Colton was hired by the National Council on Competition and the Electric Industry (a joint undertaking of the National Conference of State Legislatures and the National Association of Regulatory Utility Commissioners) to prepare an evaluation of the impacts of restructuring on small users. The results of that research were published as the paper *Electric Competition and the Small User: Its Impacts on Small Commercial, Residential and Low-Income Consumers*.

In 1997, Colton undertook electric restructuring research for Oak Ridge National Laboratory. His Oak Ridge research was published as the paper *The Obligation to Serve and a Competitive Electric Industry*.

In addition, Colton has authored four books on low-income energy policy, including *On the Brink of Disaster: A State-by-State Analysis of Low-Income Natural Gas Winter Heating Bills*; *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*; *Energy Efficiency and the Low-Income Consumer: Planning, Designing and Financing*; and *Funding Fuel Assistance: State and Local Strategies to Help Pay Low-Income Home Energy Bills*.

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

Summary of Colton Report &
Other Residential Recommendations

NOTE: Subsequent to the release of the report, the Missouri Public Service Commission established a task force on utility restructuring. Although this paper can serve to inform the task force and others, the challenges of evaluating, preserving and funding public purpose programs under utility restructuring are more comprehensive than presented by the paper. ***The report initially was designed to address low-income residential issues.*** *A report summary and other considerations are provided below.*

Introduction

In 1995, Mr. Roger Colton (M.S., J.D.), principle in the firm Fisher, Sheehan & Colton, Public Finance and General Economics (FSC) of Belmont, MA, published a report titled *Electric Competition and the Small User: Its Impacts on Small Commercial, Residential and Low-Income Consumers.*

The October, 1996 report states, "Small-business customers, residential customers generally, and low-income customers in particular are not well-positioned to take advantage of competition in the electric industry. The impacts on these customers are less likely to be positive, and more likely to be negative, than are the impacts on large industrial customers."

Utilities operating as regulated monopolies, provide many "public benefits" to the smaller customers and are allowed to recover the cost of these benefits in their rate structures. The cost-cutting necessary to maintain rates in a competitive environment are not conducive to the continuation of these "public benefits" in the manner many of us have traditionally taken for granted. These benefits are often called "stranded benefits" as they may lose their provider.

Examples of these "public benefits" include: (1) consumer protections; (2) stable and reasonable residential prices in rural and urban areas; (3) universal service, including protections for vulnerable customers; (4) environmental mitigation; (5) energy independence and sustainable sources of energy including: (a) reliable and safe energy supply; (b) efficient use of energy; (c) a diversified mix of energy sources for power generation; (d) long range planning; (e) use of renewable generation resources; (f) research, development and demonstration (RD&D) of innovative technologies; (6) stable employment at high wages with good benefits; (7) health and safety protections; (8) diversity in employment and subcontracting by utilities; and (9) environmental justice (see *Stranded Benefits in Electric Utilities Restructuring* by Nancy Brockway, National Consumer Law Center, Boston, Massachusetts and Michael Sherman, Sherman Energy Associates, Sharon, Massachusetts, October 1996 for more detail on these "public benefits").

Concerned that the above benefits will become "stranded benefits" for Missouri citizens prompted the Missouri Department of Natural Resources' Division of Energy to become more informed on this issue. The division contracted with Mr. Roger Colton to research and analyze these benefits, particularly as they relate to low-income and residential customers and how these benefits could be sustained. Moreover, a final report was to provide recommendations for consideration by policy makers and other stakeholders sharing the concern of protecting the delivery of these "public benefits". The results are published by Mr. Colton in the paper *Structuring a Public Purpose "Distribution Fee" for Missouri.*

Report Summary

Need Section

The report considers a fee associated with the consumption of energy that would serve to generate the revenues for Missouri to address the impacts of utility restructuring on residential and low-income customers. The report targets

the need to generate revenues that ensure the continuation of residential energy efficiency and renewable energy projects and cost-effective energy affordability assistance, including both cash assistance and low-income energy efficiency investments.

The report distinguishes between "system benefits charges" designed to fund many of the "public benefits" described above and currently offered as opposed to a "distribution fee" that could address broader issues related to a competitive utility environment. The distribution fee can be designed to fund the described "public benefits" as well as addressing the need to expand the investments for energy efficiency and low-income assistance beyond the current offerings of the utility industry. The report contends the expansion of benefits is especially necessary to address the risks of the low-income consumers as they are moved to a competitive, market driven utility industry.

The report discusses the need for residential energy efficiency investments siting the age of the home, presence of structural problems and the affordability of reasonable shelter costs for those consumers living at 80 percent of median income or below as defined by the U.S. Department of Housing and Urban Development (HUD). The report pays particular attention to the costs of non-heating energy consumption (i.e. lighting, water heating, air conditioning). Moreover, the report suggests investment into renewable energy, especially using solar energy for domestic hot water and for space heating.

The report elaborates on the need for cost-effective energy affordability assistance conveying many statistics that relate to the Health and Human Services' Low-Income Home Energy Assistance Program (LIHEAP) and the Department of Energy's Low-Income Weatherization Assistance Program. Using the HUD definition of affordable shelter costs, the report discusses the number of Missouri residents that are well below the poverty level and suggests this level of poverty creates an absolute mismatch between household resources and expenses. This mismatch is believed to create a need to develop or expand crisis intervention funds to prevent the loss of service due to the inability-to-pay.

The report describes a series of non-energy benefits to the utility and energy service providers regarding a low-income energy efficiency program. These benefits include reductions in working capital expense, uncollectible accounts, credit and collections expenses and other. The results of the most recent studies are summarized in Table 11 of the report.

Cost Section

The report turns to addressing the cost of a "distribution fee" and which consumers will bear the burden. Three sets of assumptions are used to prepare Tables 12 through 16 in Appendix A of the report. Tables 12 and 13 are based on the assumption the fee is imposed on end-use consumption involving electricity and natural gas. Table 14 is based on the assumption that a fee is imposed only on end-use consumption involving electricity. Tables 15 and 16 are based on the assumption that a fee is based on all fuels. Tables are prepared for all three sets of assumptions for an assessment on residential consumption only, and on residential, commercial and industrial consumption combined. Moreover, the Tables are set forth to indicate levels of funding of roughly $80 million for a base case scenario. Alternative levels of funding are provided at $100 million, $120 million and $160 million.

The report provides a basis for the various funding levels using the LIHEAP and LIWAP appropriations as the base case. Supplementing these programs are recommended as a use of "distribution fees" in addition to non-low income residential energy efficiency and renewable energy programs and non-heating bill affordability assistance. The report specifically states "focusing attention only on heating bills generally results in inadequate attention being devoted to the impacts of electric policy on residential consumers." Table 2 is provided to indicate that nearly 45 percent of residential energy use and nearly 70 percent of energy cost is from electric non-heating consumption.

Remainder

The remainder of the report is dedicated to the explanation of the results of the various tables, funding scenarios, recommended uses of the "distribution fee" and other relevant information. Interested stakeholders of the restructuring issue, especially those that provide energy services and support to low-income clients are recommended to obtain the report for a detailed study of these tables, funding scenarios and recommendations.

Other Considerations

There are other considerations not addressed by the "Distribution Fee" report. For example, the *Missouri Statewide Energy Study* gave Missourians an opportunity to understand Missouri energy issues. This report analyzes the link between economic, energy and environmental issues, supporting specifically that investment in cost-effective energy efficiency and renewable energy projects saves money, saves energy resources, prevents pollution and a creates a net gain in jobs.

The seven volume study includes one volume (Volume VII) that describes eight energy policy initiatives to be considered for implementation. Within the eight initiatives are thirty-nine recommendations with each recommendation containing multiple options for implementation creating a total of almost one hundred action items. Many of these recommendations and action items could be funded by a "distribution fee". A few initiatives are briefly provided below.

Energy Information and Education

The probability of an energy consumer making a satisfying economic and environmental choice should improve when that choice is informed. A significant amount of funding could be used effectively to develop an array of mechanisms for delivering information to Missouri citizens, specifically regarding residential energy efficiency and renewable energy opportunities.

As an example of need, despite advances in energy efficiency, many consumers are not making the most cost-effective efficiency choices. The most recent Residential Energy Consumption Survey (RECS), conducted by the Department of Energy's Energy Information Administration (EIA) found that many occupants of new homes had little information on the energy-related characteristics of their homes. Eighteen percent of new homeowners were unable to report whether or not they had a high-efficiency central air-conditioning system. Among those that did report, 92 percent reported their equipment was high efficiency. However, for the 1993 survey year, only 23.3 percent of central units shipped nationally had a Seasonal Energy Efficiency Rating (SEER) of 10.5 or greater.

The minimum efficiency allowed under the Energy Policy Act of 1992 (EPAct) is 10 SEER with maximum SEER ratings of 16+ available from manufacturers. Many of the survey respondents are believed to associate high efficiency with new equipment or equipment meeting the minimum standard, rather than from an actual awareness of energy efficiency. Similar results are present regarding other energy efficiency questions. Although the RECS information is national, there is no reason to believe Missourians make different purchasing decisions.

Energy Efficiency Standards

Missouri should continue to promote energy efficiency at various levels above the minimum standard established by EPAct. The EPAct residential standard is the Council of Building Officials' Model Energy Code (MEC). As stated above, many consumers believe they are purchasing homes with high-efficient equipment when in fact, their equipment is at or only slightly above the minimum efficiencies available. There are higher levels of cost-effective efficiency available for consumers.

In theory, better informed consumers will choose to invest in cost-effective energy efficiency. Until the suggested theory is reality, Missouri should continue to work at building consensus on methods to encourage energy efficiency investment in the residential sector. Whether this is accomplished through voluntary energy programs or by mandated regulations such as residential energy codes are choices for Missouri. Also an important question, is whether Missourians should be satisfied with minimal national standards and regulations. Or, should state and local standards and regulations be developed that require higher levels of efficiency as well as renewable energy alternatives.

Regardless, a popular program is a Home Energy Rating System (HERS). Not only does this system provide a home buyer with the level of energy efficiency of a perspective home, this system brings together home buyers, builders, bankers, appraisers, Realtors and others often facilitating the information/education need discussed above. Through a HERS, higher efficiency may become "market driven" rather than regulated through enforcement of energy standards or codes.

Alternatively, Missouri can develop and maintain a set of energy standards available for voluntary adoption. The technical assistance necessary to jurisdictions desiring to implement and enforce those standards can be provided. Moreover, the voluntary system can be monitored to evaluate the success of raising housing efficiency above current practices. Missouri could use "distribution fees" to facilitate higher efficiency standards through either a HERS program, a voluntary energy standards program or both.

Residential Energy Efficiency

The utility industry would consider residential efficiency a Demand Side Management (DSM) activity. Utilities across the country have been offering energy efficiency programs for approximately ten years. Typical benefits are the reduction of resource waste, lower bills and less need to build additional generating plants due to slower load growth, to name a few. DSM programs have been justified by many utilities as an energy resource and an important factor in utility development of Integrated Resource Plans. As stated early in this paper, efficient use of energy may become a "stranded benefit" of utility restructuring despite the success of these programs. A distribution fee could be used to continue the promotion of cost-effective efficiency measures.

TABLE OF CONTENTS

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-

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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.

driven industry places the energy efficiency industry at risk of being stymied by past market failures that have still not been remedied.

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).[2]

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 Missouri.

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

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.[3] 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."[4]

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.[5]

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 home ownership[6] found that, in the Census Division of which Missouri is a part, a $3,000

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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.

[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.

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-income heating *consumption* is greater than non-heating consumption, low-income heating *bills* represent

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[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%.

a smaller percentage of total low-income energy bills.[9] 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);[10] (c) households who receive Supplemental Security Income (SSI); and (d) households who receive Social Security (retired widows and widowers).[11]

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.[12] 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 *below* the ceiling rather than *at* the ceiling. Table 4 sets forth the 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

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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.

stunning. As Table 4 shows, a household with an annual income of $0 to $2000 will have winter heating burdens[13] 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.[14]

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 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

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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.

be made, however. In 1995, there were roughly 450,000 low-income households in Missouri.\15\ According to state Weatherization Assistance Program (WAP) officials, Missouri has weatherized roughly 31,000 homes from 1989 through 1997.\16\ 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,\17\ for ease of analysis here, these homes are excluded from 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.\18\

\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.

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

If WAP production levels continue at roughly 2,500 units per year, if no weatherized house ever needs to be re-weatherized,[19] 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.[20] Table 8 presents the number of Missouri households who are called upon to pay either more than 30 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.

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[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.

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),[21] and the extent to which utility bills contribute to those monthly shelter costs, is set forth in Table 9.[22] 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[23] 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 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.[24] The results of one of the most recent studies are summarized in Table 11. Table 11

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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).

[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).

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 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:

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

- 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,[125] three additional scenarios were added. Because the ability to deliver energy efficiency is limited by

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[125] 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.

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.[26] 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.[27]

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

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[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).

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 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[30] 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.

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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 $80 million is calculated as 100 percent of the highest historical LIHEAP/WAP appropriations in Missouri (1997$).

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

- 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[31] 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:

- 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.

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[31] These are the 125% and 150% scenarios 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:[32]

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

- 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;

(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),[33] they should include innovative partnerships involving housing,[34] financial institutions,[35] community development financial institutions,[36] and other public and private housing programs.[37]

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 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

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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.

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 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:

- o **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).

- o **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

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[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.

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[40] 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.

- o **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.

- o **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-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.[42]

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.

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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.

[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 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.

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,[43] crisis assistance initiatives such as

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[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.

utility fuel funds, or some other mechanisms), the state should commit to encouraging (and rewarding) local initiatives.[44]

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.

[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.			

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

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			

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

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.***

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

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.***

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

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

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

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.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

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.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

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.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

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.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

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.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

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.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

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.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

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.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

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.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

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.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

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.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

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.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

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

APPENDIX B:
SUMMARY OF FUNDRAISING INITIATIVES DISCUSSED IN
FUNDING FUEL ASSISTANCE: STATE AND LOCAL STRATEGIES TO HELP PAY LOW-INCOME HOME ENERGY BILLS

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

APPENDIX B:
SUMMARY OF FUNDRAISING INITIATIVES DISCUSSED IN *FUNDING FUEL ASSISTANCE: STATE AND LOCAL STRATEGIES TO HELP PAY LOW-INCOME HOME ENERGY BILLS*

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.