

**A Preliminary Analysis of the
Cost Effectiveness of Potential PAYS® Products
In Missouri**

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for

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Executive Summary

PAYS® can be used to promote customer purchase of resource efficiency products in Missouri more effectively and at less cost than any other proven program or system. Despite electric and gas rates that are low relative to much of the country, there are a number of cost-effective resource efficiency products that will qualify as PAYS® products.

This analysis of potential PAYS® products in Missouri is a feasibility study designed to help AmerenUE and the Missouri Residential & Commercial Energy Efficiency Collaborative (Collaborative) to determine whether or not to pursue implementing the PAYS® system in Missouri. Although specific markets and delivery systems have been considered, this report does not contain complete program designs or consider all possible resource efficiency products. PAYS America, Inc.'s preliminary analysis of the cost effectiveness of potential PAYS® products in Missouri reveals that, if implemented as suggested in this report, robust markets for customer purchase of cost effective resource efficiency products can be developed for:

- Catalog sales of resource efficiency measures (for example compact fluorescent lights and water savers) targeted to residential and small commercial customers supplemented by the participation of local retailers;
- Installation of resource efficiency measures (for example lighting retrofits and water saving devices) in public housing projects and master metered multi-unit residential housing units;
- Installation of resource efficiency measures (for example lighting, HVAC improvements, water saving devices) in state office buildings and colleges; and
- Custom comprehensive resource efficiency projects for large (e.g., industrial) customers.

Data used to evaluate packaging weatherization measures as PAYS® products from Missouri low income weatherization providers indicates cost effectiveness from weatherization measures is less robust than for the PAYS® products noted above. Although some measures qualify as PAYS® products assuming a cost of capital as high as 8%, this is an effort that would benefit significantly from low cost capital (e.g., a bond fund). However, the data does support moving forward at this stage in conjunction with the aforementioned efforts.

PAYS America did not obtain data from local vendors to evaluate the appliance program. However, in light of the current energy rates in Missouri, as indicated in Appendix 6, and reasonable assumptions for usage and costs (based on PAYS America's experience), the incremental costs for efficient appliances under any reasonable scenario are likely to be too high to qualify them as PAYS® products at this time.

The recommended efforts are the ones certain to produce significant cost-effective opportunities for customers and vendors of resource efficiency products if implemented correctly. However, PAYS America has provided descriptions and analyses of all the possible markets and products that were the subject of this analysis as outlined in the contract. We know of no basis for anticipating any short-term significant increases in electricity costs. However, reductions in product prices or unexpected increases in utility rates could make the resource efficiency measures that are not now viable as PAYS® products become viable at some future date. The descriptions of these options and worksheets in the Appendices could be used in such cases to reevaluate these options.

The descriptions and analyses in this report include reasonable estimates of the costs for operating each of the PAYS® markets including selected consumer assurance follow-up by AmerenUE or a designated Certification Agent, and costs associated with monthly billing of PAYS® Delivery Charges (PDC). As noted in the contract for this study, the costs for the design of a PAYS® system in Missouri or for set up of the PAYS® billing and collection system by the utility have not been considered in this study. If Missouri decides to implement a PAYS® system, these infrastructure costs can be amortized over many years and the sale of many products. Once the infrastructure is in place, there should be little cost to the utilities inasmuch as they already provide billing and collection services for all customers. While it would be reasonable for these costs to be recovered through rates (like the costs of all regulated utility infrastructure), if Missouri implements a PAYS® effort, this is a policy decision to be resolved by the parties and the Commission.

The descriptions of all of the efforts contained in this analysis are not program designs. If AmerenUE, the Collaborative, or the Missouri Public Service Commission (Commission) decides to implement a PAYS® system in Missouri, interested parties should work together with expert assistance to develop detailed program designs. A program design provides a complete road map for those entrusted with implementing a PAYS® system or any resource efficiency program. Such a design should clearly prescribe what offers can be made to which customers, how they may be made, who should be permitted to make them, and how consumer assurance is to be provided. All program forms and contracts, product certification criteria, vendor certification protocols, warranty procedures, and utility billing system changes (including how information about PAYS® should be depicted on monthly bills) should be clearly specified before any customer contacts are made. Taking the time to ensure that operating details have been thought through eliminates the problem of program decisions being made in crises by field staff, who often make different decisions than policy makers or those expert in PAYS® and resource efficiency efforts.

Introduction to Pay-As-You-Save™ (PAYS®)

The PAYS® system breaks through the barriers to widespread resource efficiency by making installation of efficiency measures attractive to consumers, vendors, and investors.

PAYS® enables building owners or tenants to purchase and install money-saving resource efficiency products with no up-front payment and no debt obligation. Those who benefit from the savings pay for these products through a tariffed charge on their utility bill, but only for as long as they occupy the location where the products were installed. The monthly charge is always lower than the product's estimated savings and it remains on the bill for that location until all costs are recovered. Like a loan, PAYS® allows for payment over time, but unlike a loan a customer's PAYS® obligation ends when occupancy ends or the product fails.

PAYS® is the first market-based system to successfully promote the purchase and installation of resource efficiency measures. A two-year pilot program with two New Hampshire utilities has proven that:

- customers want PAYS® products (Public Service Company of New Hampshire's pilot was fully subscribed in the first quarter of both pilot program years);
- customers who have not previously purchased resource efficiency products will buy PAYS® products;
- customers will pay their PAYS® charges (nearly 100% of customers are current on payment of their PAYS®' charges, which means that, unlike subsidy programs, funds expended for measures will be returned and be available to help other customers);
- vendors will market and sell PAYS® products independent of utility program staff;
- the PAYS® legal structure involving a tariff and contract documents functions well; and
- utilities can manage PAYS® billing and collection without major difficulty.

The system can be tailored to individual states regardless of whether a state has initiated retail competition for electricity or gas. PAYS® can be used to create vibrant markets for any cost-effective, resource-efficiency product.

States may implement PAYS® systems whether or not they have funds for incentives to make more measures cost effective. States may wish to include financial incentives in a PAYS® system to make more measures qualify. This is especially useful in states where avoidable costs for transmission, distribution, future supply, or even environmental clean up have been identified but are not currently impacting rates.

PAYS® Products

PAYS® is not a traditional resource efficiency program in which staff from a utility, government agency, or state or locally funded nonprofit use public or ratepayer funding to facilitate installation of resource efficiency measures. Instead, PAYS® is a market-based system that creates an infrastructure for customers to buy and pay for cost-effective resource-efficiency products because they are packaged as desirable products that customers want and can afford. These products are not burdened with the market barriers that have previously inhibited customer investment in resource efficiency (see "Pay-As-You-Save Energy Efficiency Products:

Restructuring Energy Efficiency” available at www.paysamerica.org). These resource efficiency measure packages are called PAYS® products. PAYS® products are only available in states that have instituted a PAYS® tariff and infrastructure.

Instead of paying customers financial incentives to do something that they would not otherwise do, PAYS® creates a market infrastructure where vendors sell and consumers buy products. PAYS® assures customers, especially successor customers who accept PAYS® obligations when they accept service at a location where PAYS® measures have been installed, that the estimated savings from the measure(s) are greater than the PAYS® Delivery Charges (PDC). A well-designed PAYS® system should not limit the number of PAYS® products that customers can purchase due to limited funds for financial incentives, program staff or budgets. The only limit should be customer demand and product availability.

There are two types of PAYS® products discussed in this report: permanent (or stationary) measures and portable measures. Permanent measures are those that become part of the real estate where they are installed (e.g., insulation or lighting fixtures) and the monthly charge is paid by the succession of customers at the location where it was installed until the term of the charge has expired. Portable measures are those that customers take with them when they leave a location such as CFLs, refrigerators, or clothes washers (in some jurisdictions, some of these items might need to be treated as permanent measures). Charges for portable measures are also paid monthly on the utility bill, but the balance is due at the time the customer leaves the system and can no longer be billed for them.

Cost Effectiveness

Twenty years ago, energy efficiency measures were typically evaluated for cost effectiveness based on the cost and savings to the end user. A simple payback calculation was based on the amount the customer would pay for the measure and the annual savings the customer could expect. Savings were calculated based on:

- the customer’s reported building usage and current retail utility rates;
- the actual building conditions or energy systems in place; and
- the anticipated performance of the actual replacement or upgrade products being installed at that location.

This method of determining whether a measure was worth purchasing was typical for residences and public buildings (primarily schools and hospitals). Few building owners, however, felt that an investment that paid for itself in longer than two or three years was worth the risk. Therefore, many cost-effective measures were not installed.

In the late 1980s, with the advent of integrated resource planning in the regulated energy industry, the concept of cost effectiveness shifted focus. The focus was no longer on the individual but on the system and society since efforts to improve energy efficiency had substantial system and societal benefits in addition to benefits to individual energy users. New methods for determining cost effectiveness were developed using assumptions about such factors as system costs for energy (e.g., marginal wholesale energy costs), projected increases in energy and demand costs, the energy performance of equipment, typical conditions in customers’ homes

and businesses, inflation and discount rates, environmental benefits, average installation costs, take back, and free ridership.

Most of these analyses were used to determine the amount of financial incentive to be offered to customers to induce them to install resource efficiency products that were cost effective to the system or to society. While some customers would be expected to save more than the estimated savings and some customers less, states that used this approach based their incentives and use of public funds on estimated system and societal benefits assuming the average installation.

PAYS® is a market-based system, so it shifts the focus of cost effectiveness back to individual customers, who make the decisions about purchasing the products. PAYS® cost effectiveness is calculated using customers' usage and costs (e.g., retail rather than wholesale costs for energy). PAYS® cost effectiveness does not include system and environmental benefits that are not included in retail rates. Because projected increases in energy costs are uncertain, they are also excluded from PAYS® cost effectiveness calculations. However, since system cost analyses consider the wholesale cost of energy and usually include only modest adders for externalities, in most cases, retail rates will be higher than wholesale rates, so more measures tend to qualify as cost effective using the PAYS® system.

Customers receiving savings from PAYS® products are required to pay 100% of the cost or incremental cost for installation of these products. Since individuals' savings are not being subsidized by other electric customers, all savings can be included in the cost effectiveness calculation (i.e., gas, water and avoided purchases or maintenance savings). Our analyses include all such documented savings.

Since PAYS® customers pay for installation of the products that produce those savings, the PAYS® system must assure them that they will end up with some money in their pocket. To ensure customers get savings immediately, PAYS America recommends that resource efficiency products and services qualify as PAYS® products only if three-quarters of the estimated savings will cover all costs for an installation over three-quarters of its estimated useful life (3/4 - 3/4 Rule).

Because actual savings depend on each customer's current usage and rates, not all customers will qualify to buy the same PAYS® products. For example, while a lighting retrofit (e.g., replacing T-12 fixtures with T-8 fixtures) might be cost effective for a warehouse in which lights are on 24 hours each day, the same retrofit might not be cost effective for a school in which the lights are used for only 6 hours per day.

Data and Methodology

The analysis of potential PAYS® products in Missouri is a feasibility study designed to help AmerenUE and the Collaborative to determine whether or not to pursue implementing the PAYS® system in Missouri. Although specific markets and delivery systems have been considered, this report does not contain complete program designs or consider all possible resource-efficiency products.

After detailing the assumptions used in the course of completing this feasibility study, this report

includes descriptions of six possible PAYS® markets for different customer types (e.g., residential, small commercial, etc.). Each description notes whether we have determined that this PAYS® effort is likely to result in viable markets with current rates, costs, vendors, and interest rates. Any calculations used to make these determinations appear in the appendices.

Vendors

PAYS America contacted a number of vendors of potential PAYS® products in Missouri by telephone and email. A list of individuals who provided information for this effort and their contact information appears as Appendix 12. The contract envisioned PAYS America making calls to vendors selected from telephone directories for the target cities. In consultation with Ms. Brenda Wilbers of the Missouri Energy Center (Energy Center), the primary contact for this project, PAYS America agreed that the most efficient and accurate route was to contact appropriate vendors recommended to us by Ms. Wilbers. PAYS America appreciates the fact that not only did Ms. Wilbers provide contact information for potentially helpful vendors, she contacted them and sought their cooperation on behalf of AmerenUE and the Collaborative.

Contacts with vendors involved explaining the PAYS® concept and answering their questions. Follow-up to initial calls was by email and telephone. PAYS America copied Ms. Wilbers almost all of the written correspondence to keep her informed of our progress. These vendors were asked to provide cost and savings data that constitute the bulk of this analysis. When feasible, cost and savings data have been verified by PAYS America. With the exception of the CFL (compact fluorescent lighting) Catalog Option and the Public Building/Multi-Family/Hotel Option, PAYS America limited its research to the cost and savings estimates provided by recommended local vendors and associates recommended by them. These vendors are expert in resource-efficiency measures that are cost effective and attractive to Missouri customers since the success of their businesses depends on this knowledge. PAYS America has worked with Niagara Conservation and Water & Energy Savings Corporation in the past and used their information to develop the cost and savings data for the CFL Catalog Option and the Public Building/Multi-Family/Hotel Option. Both of these vendors have indicated that they would provide the services described below in Missouri if local vendors were unwilling or unable to provide these same services at the same or lower prices.

PAYS America developed preliminary concepts for markets that would enable these vendors to sell their services and products to customers as PAYS® products. These concepts are described in two to three page summaries later in this report.

Consumer Assurance

The PAYS® system requires an independent Certification Agent who can assure customers that PAYS® products are estimated to save more money than they cost.

PAYS America developed reasonable estimates of the costs for providing consumer assurance, which would be accomplished primarily through telephone contacts with customers to verify data inputs, and supplemented with selected verification of calculations and even scattered inspections of selected projects. These estimates are based on PAYS America staff experience in operating resource-efficiency programs. (NOTE: PAYS America has found that by requiring vendors to pay for the costs of failed inspections, only a very small budget allocation is required

to provide consumer assurance. If additional inspections are warranted, they are paid for by the vendors whose inadequate work necessitated them rather than participants or non-participants).

Spreadsheets were developed for each PAYS® option to determine which of these markets would be viable if implemented as described (c.f. Appendices 4 – 10). Additionally, Appendix 11 is the PAYS® Analysis Tool which can be used by the parties to screen additional measures.

Target Cities

Initially, Ms. Brenda Wilbers of the Energy Center advised PAYS America to use St. Louis and Jefferson City as the two cities to be included in our analysis. She stated (March 16th email) that they are sufficiently different populations yet each would be large enough to potentially develop a PAYS® market. On March 31st, PAYS America was notified that the Collaborative would like to add Cape Girardeau as a third city in this analysis.

PAYS America requested that vendors consider actual projects in these cities when providing their estimates for this analysis. However, since they were not reimbursed for their time, vendors were unable or unwilling to provide such data for all cities. Consequently, some analyses for this report are not based on cost and savings data for all three cities.

Notwithstanding this limitation on data, PAYS America is confident that the data used for this report is sufficient for a preliminary analysis for all three areas. Inasmuch as electric rates are the same for these cities and gas rates have been comparable, resource savings from measures are very likely to be similar in all three cities.

Secondly, vendors who could not provide information for these cities indicated that they knew no reason why their costs for services (or their competitors' costs) in these cities would vary from one area to another. Appendix 10, showing the viability of PAYS® products based on actual projects for Missouri manufacturers, tends to support the conclusion that cost effectiveness of measures does not vary significantly among the three cities at least for larger projects. However, for projects that depend heavily on labor costs, for example weatherization, different labor costs may impact overall cost effectiveness.

Since the savings and costs for measures installed in these three cities should be comparable, except as noted above, the analyses should not be significantly different. Given the limited scope of this preliminary analysis, PAYS America determined the information as presented was sufficient.

Interest Rates

In the absence of guidance from the Collaborative, PAYS America used the default interest rates (5%, 7%, and 8%) noted in our original proposal. For vendor-financed options (e.g., the CFL Catalog Option), vendors were allowed to choose their own interest rate.

If one of the PAYS® options described below is viable at the highest interest rate, it will be viable regardless of the source of capital. When a PAYS® option did not screen cost effective at the highest interest rate (e.g., Piggyback Weatherization), it was screened at the one or both of the two lower rates to determine if the availability of less expensive capital (e.g., bond funds or

utility funding) would enable resource efficiency products sold through this option to qualify as PAYS® products. Any option that would be viable only if lower cost capital were available is identified as such.

Electric Rates

Ms. Lena Mantle of the Missouri Public Service Commission (via Ms. Wilbers) provided the current marginal retail rates for electricity from AmerenUE's tariffs. PAYS America calculated a weighted average of winter and summer rates for residential customers of \$0.04987 per kWh and \$0.04607 for small general service customers (see Appendix 2). Weighted average rates were used to determine potential savings for measures used equally year round such as lighting. For measures such as heating or cooling, the appropriate winter or summer marginal rate would be used.

In a telephone conversation, Ms. Mantle also informed PAYS America that for the next few years, for customers of AmerenUE, significant increases in electricity costs were not anticipated. This analysis assumes, therefore, that efficiency measures that are not cost effective now are not likely to be cost effective when Missouri is ready to implement a full-scale PAYS® effort. The decision whether to proceed with developing a PAYS® market should be based on whether Missouri policy makers want to implement the recommended efforts that have been determined to be cost effective.

Gas Rates

Ms. Mantle also provided information regarding gas rates (see Appendix 3). In Jefferson City, gas rates were \$1.0032 per ccf for residential customers and \$0.8811 per ccf for general service customers. In St. Louis, gas rates were between \$0.90748 (summer) and \$1.17419 (winter) per ccf for residential customers and between \$0.88284 (summer) and \$1.18577 (winter) per ccf for general service customers. Assuming a combustion efficiency of 80%, the cost for heating one's premises with gas in the winter per 100,000 btu's delivered is significantly higher than it would be for heating the same premises with electricity for both residential and general service customers in Jefferson City and St. Louis.

Validity of Data

PAYS America is confident that the data used for this analysis is valid (i.e., cost data represents realistic costs for measures and savings estimates approximate the savings customers will realize if they purchase PAYS® products through the markets described below).

Data for the analyses of the CFL Catalog Option and Large Commercial & Industrial Options is the most reliable. The actual costs to implement the CFL Catalog Option will very likely be equal to or less than the vendor's estimate (i.e., other vendors may actually bid less to provide these services). The savings data for this effort are simple computations (i.e., existing watts and new watts) so the savings estimates are equally reliable.

The cost and savings data for the Custom Retrofit Option for Commercial and Industrial customers is also very reliable. The Industrial Assessment Center (IAC) at the University of

Missouri-Rolla not only has the credibility of the University of Missouri behind it, IAC has extensive experience with retrofits for these types of customers. This experience ensures that their savings and cost estimates are accurate. This market alone provides sufficient resource efficiency opportunities to justify AmerenUE implementing PAYS® in its service territory.

The Lighting Option will result in numerous cost-effective PAYS® products. The fact that both Lighting Services, Inc. and Energy Systems Group were both able to provide examples of cost-effective measures makes the representations of each more credible. Additional data to support this conclusion (and more data to identify weatherization measures that qualify as PAYS® products) will surface during the design and implementation of Missouri's PAYS® system.

Capital to Pay PAYS® Upfront Costs

While Niagara Corporation has agreed to finance the sale of measures it sells (c.f., CFL Catalog Option), other vendors were unable (e.g., Water & Energy Savings could not afford to add debt to its books) or unwilling (Lighting Service, Inc. was unwilling to absorb risk of financing) to finance the installation of measures. The recommendations in the last section of this report regarding treatment of PAYS® bad debt should, if implemented, adequately address the concerns of these or other vendors so that market benefits of increased sales will outweigh the risk of their financing of their products or services.

Nevertheless, PAYS America believes that if the parties wish to implement a PAYS® effort, early on in the process, capital providers should be invited to help design the Missouri PAYS® effort. While both financial institutions contacted for this study, M Corporation and United Missouri Bank in St. Louis, believed they would be willing and able to make some funds available (see letter in Appendix 1), making the PAYS® cash stream reliable will translate into the lowest cost financing possible. With Missouri's low energy rates, high cost financing would result in some potentially cost-effective measures not qualifying as PAYS® products. Managers of pension funds, tax deferral funds, small mutual funds and banks should be contacted about their interest in providing capital for PAYS® products.

PAYS America did not contact AmerenUE to ascertain its interest in providing capital for a PAYS® effort. However, it should be allowed to bid to provide funds for PAYS® products since the profit it would make from financing might alleviate some of the lost revenues associated with any program that reduces customer use of electricity (or any resource). Additionally, since we are recommending use of the AmerenUE billing and information infrastructure, there is justification for them to profit from that use if they are interested in providing capital.

Based on interest expressed by capital providers to date, PAYS America assumes that if the recommended treatment of bad debt is implemented as noted below, the cash stream created by a PAYS® effort will be sufficiently reliable to attract sufficient funds for installation of PAYS® products when needed.

Risk Mitigation & Bad Debt

One of the reasons that PAYS® products are attractive to customers is that PAYS® reduces risk for customers. While some of the risk that is removed is perceived risk, there is real risk that is

transferred to other parties. Properly assessing this risk is critical to the operation of the PAYS® system. A risk assessment that is too conservative unnecessarily reduces investment in resource efficiency. Too reckless an assessment will result in the financial failure of the program. The goal should be to assess risk at a cautious and prudent level.

For utilities across the country, the bad debt for municipal, large nonprofit, federal, state and select large power customers (those not likely to go out of business or whose location is so desirable as to make relocation unlikely) is less than the already low rate of bad debt for utility customers overall. These are the most stable, reliable customers that any utility has. In the New Hampshire pilot PAYS® program, 100% of Public Service Company of New Hampshire's (PSNH) participating large customers paid their PDCs to date. The bad debt rate for these customers is not likely to increase significantly in the few remaining years that PDC payments are due.

The New Hampshire Electric Cooperative's (NHEC) PAYS® pilot is also instructive on this point. Nearly 100% of customer payments that were due in 2002 and 2003 were received by NHEC. This was true despite a diverse, though small, base of participating customers. Just as they do with the other components of the utility bill, customers will continue to make their payments rather than face disconnection. Additionally, since more investment in cost-effective resource efficiency means that customers that might otherwise default on their utility bills are in a better position to pay them, PAYS® should have the positive effect of decreasing the utility's overall customer default rate.

The only way that risk to the utilities would become significant would be if the utilities stopped insisting on payment or if many of the locations at which they installed measures remained vacant for long periods of time. The first would only happen if the utility behaved imprudently. The second is unlikely and should be easily mitigated by the judicious selection of large customers as noted above.

There are two recommended ways to deal with the risk that does exist from even a well-implemented PAYS® effort. Missouri policy makers will have to decide which is most appropriate for Missouri.

The solution PAYS America is recommending in New Hampshire Docket DE 04-052 is the most conservative and will limit many of the benefits of a PAYS® effort. However, its conservativeness may make it more attractive, especially for an initial effort.

This approach involves establishing a guarantee fund to cover bad debt and basing the amount of the guarantee fund on the amount assumed for a reasonable worst-case default rate. For large customers and portable measures, where repayments in the New Hampshire pilots have exceeded 99.9% of the amount spent on measures, using a 10% payment default rate, which is one hundred times greater than the actual default rate in the pilot, should be many times the amount needed to ensure bad debt would never exceed the guarantee fund.

For other customers, where repayment or continued occupancy is less certain, a default rate as high as 20% would still allow for leveraging five times the rate of the guarantee fund for the capital to pay the up-front cost for measures without any real risk that bad debt would exceed the

guarantee fund. These extremely conservative rate assumptions can be lowered as Missouri develops its own experience with PAYS® bad debt. While in New Hampshire, money used to capitalize the guarantee fund is supplied by ratepayers, PAYS America does not recommend any particular source for a guarantee fund.

The other approach acknowledges, especially for select measures and customers (e.g., short term measures and measures for municipalities and large permanent non-profits such as hospitals), that the risk of bad debt is minimal or non-existent. The second approach is for the Commission to guarantee the utility that if it prudently operates its billing and collection function, it is guaranteed cost recovery. Since the risk to date for select customers is less than a few hundredths of a percent, this approach offers the greatest potential for leveraging capital to pay the up-front cost for measures. Since bad debt will most likely result from a location where PAYS® products were installed remaining vacant, a Commission may determine that this is an appropriate use of the utility's existing bad debt system and a reasonable system expense to be shared by all rate payers who hope to receive the societal benefits of their fellow customers paying for resource efficiency.

With this approach, the parties would likely agree to begin with the most proven options (those noted above) and gradually expand the scope of measures and customers eligible to receive PAYS® products (or use the more conservative guarantee fund approach for these customers until sufficient data is available to ascertain whether the bad debt will be low enough to use this approach for other customer groups, too).

PAY® Options

CFL Catalog Option (Cost Effective)

PURPOSE: A low cost vendor-driven CFL catalog program (other items, such as low flow showerheads, flapperless toilets, programmable thermostats can be added as desired).

REQUIREMENTS:

- Program advertised by utility bill stuffers, school presentations, press releases, advertisements paid by utility or advocacy groups, public service announcements, etc.
- Utility adds charge to customer's bill; the charge is not removed unless the customer leaves system (i.e., once purchased, customer's only recourse is free product replacement under warranty program.)
- Charge per CFL is \$0.20 per month for 27 months. Costs for other items to be computed as added.
- Other utility involvement minimized (no returns or billing changes and all complaints directed to Vendor).

SUPPLIER: Niagara Conservation (Vendor) has promised to bid to supply up to five CFL models. Each will be sold with direct shipment to customers at a cost of \$5.40 per CFL spread over twenty-seven (27) payments (the 30 Watt Circle which is an appropriate replacement for a 150 watt reading lamp will cost twice that amount -- \$0.40 per month). The actual cost for CFLs sold through this effort will be determined by competitive bid and therefore be equal to this price or less. Vendor will send customers their CFLs upon receipt of a signed customer agreement that also serves as a mailing label and billing form. Either it will be sent to customers as a bill stuffer or, if possible, downloaded and printed off the web. Vendor has promised to pack CFLs, send them directly to customers, and replace any CFLs damaged in shipping. All CFLs will be warranted for the full 27-month payment term. Vendor will offer free replacement shipped to any customer returning unbroken but non-working CFLs during the payment period. The only requirement other than being a customer is that the customer order at least 6 CFLs per order.

OFFER: Residential customers can purchase between 6 and 18 CFLs (11, 15, 20, 24 and 30 watts) and pay 20¢ per CFL for 27 months for all but the 30 watt Circle. Small commercial accounts will have a different ordering form and will not be limited to 18 CFLs. As Appendix 4 shows, four hours of use ensures a net monthly electricity savings of approximately 5¢ per CFL during the payment term, even if only 45 watts are displaced. After the 27-month payment term, customers will receive all the savings (assuming 8,000 hour life, residential customers will receive net electricity savings of \$12.55 per CFL plus the avoided cost of purchasing 10 replacement incandescent bulbs – at least \$2.50 per CFL – c.f., Appendix 4). Once PAYS® charges are on their account, customers must pay their PAYS® charges for all 27 months. If they leave the utility service territory, they must pay off the balance at that time. The utility forwards payments to the Vendor for the CFLs over the 27 month payment term deducting a \$2 fee per order that is also collected over the payment period. \$1.50 goes to the utility to cover the cost of adding the charges once and \$0.50 to the Certification Agent to pay for selected follow-up phone calls to verify usage. The utility is responsible for non-payments.

CONCEPT: Customer fills out an order form that has been sent to him/her as a bill stuffer or, if possible, is downloaded from a website. The order form serves as a PAYS® Agreement form, mailing label, and billing form. The form has the following information:

- The customer only saves more than the payment amount if the bulbs they are replacing are used at least an average of four hours per day and the CFL reduces their wattage by at least 45 watts.
- The customer's signature certifies usage of at least four hours per day and reduction of the wattage by at least 45 watts.
- The minimum order size is 6 CFLs. The maximum is 18 (residential customers only).
- If they do not return the CFLs in good condition and in their original packaging within two weeks of receipt, the charge will be added to their monthly bills for the next 27 months.
- Should the bulb fail during the 27-month payment period, they must contact the Vendor for their free replacements by calling the provided toll free number. They will receive replacement CFLs upon returning the unbroken, non-working CFL to the Vendor.

The customer fills in the number of CFLs (s)he wants, signs the form and sends it to their utility which verifies that the form is from an eligible customer before sending it to the Vendor. The order form has bar code information including each customer's name and address and account information. The Vendor uses a bar code scanner to process the order, ships the CFLs to the customer and supplies the utility with a list of orders shipped and order forms.

The customer has 2 weeks from date of receipt of CFLs to return undamaged CFLs in the original packaging to the Vendor (at customer's expense) or charges will go on their account. Returned CFLs will be used for other shipments. After 2 weeks, the Vendor sends the list of shipped orders to the utility, which starts billing and makes the initial payment to the Vendor within 30 days of receipt of the list.

If the bulb stops working during the warranty period, the customer calls the toll free number, arranges for bulb's return, and is shipped a brand new replacement CFL (The utility/Vendor reserves the right to inspect CFLs prior to return – broken CFLs will not be replaced).

Any local retailer willing to comply with program rules (i.e., types and quality of products, warranty, vendor financing cost, data collection, etc.) will be allowed to sell PAYS® CFLs directly from their stores. For the first time, more efficient lighting will have lower out-of-pocket costs than incandescent bulbs.

Piggyback Weatherization Option (Cost Effective*)

PURPOSE: By piggybacking the sale and installation of measures sold as PAYS® products onto existing low income provider networks, the ability of local providers to serve low income customers who do not qualify for their grant services and other residential customers in their service area is increased.

REQUIREMENTS:

- Utility adds PAYS® charge to customer's monthly bill and assigns obligation to the meter.
- Individual PAYS® charges are calculated by the local weatherization provider using an adjusted National Energy Audit Tool, NEAT, audit (reducing inflation factors and compensating for higher or lower indoor temperatures) and then the PAYS® Analysis Tool.
- The Certification Agent verifies selected analyses and assumptions (by phone).
- The utility makes capital available for measures or a fund is created by the state (e.g., funds or annual appropriation), or a capital provider will need to be identified.

SUPPLIER: Staff of local weatherization programs throughout Missouri already provide energy efficiency services to income-eligible clients. Their programs are heavily monitored by both federal and state agencies. Typically, they do not install all cost-effective water and electricity-saving measures and a cost-effective opportunity is lost. Additionally, providers are restricted in the services they can perform by budget constraints and by income guidelines (limiting which low income customers qualify for their services). Furthermore, it is often difficult to install measures in rental housing because of concerns that landlords will increase rents if homes are weatherized (this is less likely with PAYS® since the customer will be paying the PAYS® charge and the landlord will have to disclose the charge to prospective tenants). Finally, although they have extensive capabilities, they do not provide fee-based services to non-low income residents in their service territories.

OFFER: Customers currently receiving services from weatherization providers will be able to buy cost-effective measures currently not included in the program at catalog rates from their local provider if these are not already approved program measures. Residential customers not receiving services from local providers may buy cost-effective weatherization services as PAYS® products through a two-step process.

In order to receive Step One measures, customers will be asked to answer a number of questions (to make sure there is sufficient opportunity for savings) and sign a Customer Agreement to purchase installation of a limited number of low cost measures (i.e., air sealing, CFLs, and water savers) for a fixed monthly charge on the customer's electric bill. Signing the agreement before staff are sent to customers' homes will ensure providers are paid for all services. If appropriate (i.e., based on existing conditions in the residence), the customer will receive an analysis based on the NEAT audit. The analysis will identify if there are any Step Two efficiency measures (e.g., attic, wall or floor insulation and furnace upgrades) that qualify in their home. If this option is developed as a PAYS product, the customer-specific eligibility evaluation form must examine the potential health and human safety consequences of any measures that reduce air infiltration due to the risk of carbon monoxide exposure or indoor air pollutants.

If there are Step Two measures that qualify as PAYS® products and if the customer signs another Customer Agreement, these measures will also be installed in the customer's home. The agencies' regular contractors can install all measures customers purchase in Step Two. The local provider or its contractor will install them and be paid upon completion of the work.

CFLs and water saving devices will be treated as portable measures and air sealing and other Step Two measures will be treated as permanent measures. The monthly payments will be set so that savings from these measures will exceed their monthly cost. As illustrated in Appendix 5, it is likely that customers will have multiple PAYS® charges at one location with different terms (because measure lives vary) and some customers will also have PAYS® charges for portable measures. For permanent measures, the customer's payment obligation is only for as long as (s)he is a customer at that location. The balance owed on portable measures must be paid off at the time a customer leaves the utility's service territory.

CONCEPT: The homes of low income customers, especially those who do not qualify for low income weatherization assistance programs, are often most in need of weatherization services. However, because these customers lack resources and debt capacity (and are more likely to be renters) they are less likely than any other customer to purchase resource efficiency measures that will lower their bills. Reducing their utility bills benefits all customers by reducing bad debt, the costs for fuel assistance programs and the societal costs associated with substandard living conditions (i.e., unnecessary illness, poor achievement in schools, unpaid bills, etc.).

By piggybacking this option onto the existing low-income provider network, the percent of total costs spent on administrative and start-up costs (which are typically a substantial percentage of program costs) can be greatly reduced. Low-income customers who would be otherwise ineligible to receive services (due to income guidelines or budgetary restraints) would be able to be served (i.e., they could realize these benefits too). Non-low income customers in their service territories would also have access to affordable weatherization measures.

When this option is established, the tariff should be written so that it is an energy service charge that can be paid with fuel assistance funds. That will ensure that eligible customers are not "penalized" (i.e., their financial situation is not worsened) because they agreed to pay for improvements that may eventually (i.e., when the PAYS® charges are paid in full) reduce the burden of fuel assistance programs for all customers.

Providing capital for these measures for these customers may be more acceptable to utilities since unlike other low-income programs, the money will be repaid by the customers who benefit from the measures. If utilities are not interested in capitalizing a fund to pay for measures, the state may be interested in creating a fund with bonds or an appropriation (for the same reason). If neither of these options are viable, a low cost third party capital provider will be needed.

Local weatherization providers, at their option, would offer PAYS® products to eligible customers. This effort needs to be optional because some providers may lack the staffing to offer PAYS® products at any given time. This effort would be available to any residential customer, fully taking advantage of the service capabilities of the providers and their contractors.

For this option to work, careful adjustments will need to be developed for the NEAT audit to adjust savings results to account for different usage patterns in individual homes and to eliminate fuel inflation factors. (NOTE: This was accomplished in Texas in the mid 1990s by the Energy Efficiency Institute, a corporation operated by the Co-Executive Directors of PAYS America.)

Appendix 5 is the analysis tool used to ascertain the viability of this option. It or the PAYS® Analysis Tool can be used to screen measures. As indicated in Appendix 5, most measures can be packaged to qualify as PAYS® products with a cost of capital of 5% (although some also qualify if capital is as high as 8%). However, the program charge amount used in Appendix 5 (i.e., funds used to cover consumer assurance and utility billing costs) was only 5 dollars. PAYS® Piggyback Weatherization is the recommended PAYS® effort that would most benefit from low cost capital (e.g., a bond fund).

*These measures narrowly qualify as PAYS® products. Carefully resolving program design details, including cost of capital, issues will be essential for a successful effort.

Residential Appliance Option (No Data/Not likely Cost Effective)

PURPOSE: Customers seeking to buy new appliances will, for the first time, find it costs less to buy the most efficient appliance at participating retailers.

REQUIREMENTS:

- Program advertised by bill stuffers, school presentations, press releases, advertisements paid by utility or advocacy groups, public service announcements, etc.
- Utility adds charge to customer's bill; the charge is not removed unless the customer leaves system (i.e., once purchased, only recourse is free product replacement under warranty program. For permanent appliances (e.g., hot water heaters, central air conditioners, etc.) the tariff is assigned to the meter.
- The PAYS® charge covers the incremental cost for the more efficient appliance and, if possible, a little more than that. The charge is set annually by the Collaborative based on market conditions.

SUPPLIER: Local retailers will be invited to participate. They must agree to sell selected Energy Star appliances as follows:

- Customers seeking new or replacement appliances will be informed about the PAYS® option. The conditions necessary for them to save money will be explained (e.g., paying a water/sewer bill, minimum usage, gas heat dryer, etc.).
- Participants pay an up-front charge for new appliances as they do now (i.e., cash or financing).
- The out-of-pocket expense for PAYS® products is set to be less than traditional, non-efficient models.
- The customer signs an agreement to pay the balance of the payments on the utility bill. The payment amount is set to be only a portion of their estimated savings (c.f., the 3/4 - 3/4 rule).

The retailer must also agree to process the paperwork and send it to the utility. The retailer receives the full PAYS® amount from the capital provider (e.g., utility or third party fund). Retailers can agree to self-finance and may wish to advertise their participation in the PAYS® option.

OFFER: Residential customers can purchase the most efficient new or replacement appliances in participating stores for less out-of-pocket money than non-efficient appliances. When purchasing a new or replacement appliance, they go to a participating retailer and select the desired appliance. Their usage and situation is evaluated to ensure they will have net savings even with the PAYS® charge. For example, customers who use the appliance infrequently or who do not pay for water or sewer may not have sufficient savings to warrant purchasing the more efficient appliance based on a personal cost effectiveness criteria. The participating retailer will have a chart to guide the customer and retailer in assessing the viability of the appliance as a PAYS® product. When appropriate, the customer signs a Customer Agreement, agreeing to pay for the incremental cost for the more expensive appliance on their monthly utility bill over time. This payment will not impact their personal debt rating. Customers will have lower total ownership

costs (i.e., life cycle costs for owning the appliance) compared to the life cycle costs for less efficient appliances.

For permanent measures (e.g., central air or hot water heaters, etc.) the charge will be assigned to the meter so that a customer's only obligation is to pay the charge while a customer at the location where the appliance is installed. The obligation to pay also ends if the appliance fails and is not repaired. For portable measures (e.g., horizontal access washers), if the customer leaves the utility's service territory, (s)he must pay the balance of any unpaid charges with the last bill.

CONCEPT: For the first time, customers pay less for more efficient products.

Customers should be informed of the PAYS® option so they can select participating retailers. They compare models with the features they want. If available, an Energy Star model that is usually more expensive is offered to them for less out-of-pocket expense than less efficient models.

They answer some questions to make sure their savings are likely to exceed their monthly charge. Questions may include hours of use, type of energy or other resource supplier, etc. A table will be prepared for the retailer to assist them in determining if the customer should proceed with the PAYS® option.

The customer signs a Customer Agreement form. Customers buy the more efficient appliance using whatever means they normally use for these types of purchases (cash, credit card, store financing). The retailer sells a more efficient and more costly appliance to more customers (increasing profits). The retailer receives some of the payment from the customer and the balance from the capital provider (a third party or the retailer willing to self-finance the incremental cost).

The utility bills the customer (or for permanent measures the customer at that location) until all payments have been collected. The utility forwards the payments to the capital provider (which could be the utility). The utility is responsible for non-collectibles.

If the appliance stops working during the warranty period, the customer follows the warranty instructions. For permanent measures, it may be necessary to negotiate warranties that extend at least as long as the payment period. Doing so may require allowing the retailer to recover post warranty expenses by extending the term of the PAYS® charge.

Appendix 6 is an analysis tool that can be used to ascertain the viability of this option if and when gas, water or electric prices increase significantly or the price premium for more efficient units declines.

Public Building/Multi-Family/Hotel Option (Cost Effective)

PURPOSE: A low cost, multi-resource, vendor-driven PAYS® option to reduce utility costs in multi-family structures, especially public housing projects.

REQUIREMENTS:

- Utility adds PAYS® charge to customer's monthly bill and assigns obligation to the meter.
- Individual PAYS® charges are calculated by the vendor using PAYS® Analysis Tool.
- The Certification Agent verifies analyses and assumptions (primarily by phone).
- A capital provider is located.

SUPPLIER: Water & Energy Services Corporation (Vendor) has already completed six audits of public housing projects in or near the St. Louis area. As shown in Appendix 7, recommended measures in five of those projects can be packaged as qualifying PAYS® products. Vendor installs water saving devices (e.g., toilets), controls, boiler repairs and replacements when cost effective. All five projects qualified as PAYS® products even if the interest rate was 8%. Vendor will warranty the measures for the duration of the payment term (but the cost for repairs and replacement will either be embedded in the project cost or added to the term when necessary). Any vendor willing to comply with program regulations can be certified to sell its services and products as PAYS® products.

OFFER: Public Housing Authorities, single-metered multi-family building managers, and hotels can buy resource-efficiency products from certified vendors. There will be no upfront cost for the project. Payments estimated to be equal to or less than 75% of the monthly savings will be added to the monthly electric utility bill for a term not longer than 75% of the estimated measure life. Since the payment obligation is a tariffed charge and not a loan, there is no individual debt (i.e., the project should not show up on the books except as a reduction in utility bills). The customer's payment obligation is only for as long it is a customer at that location and only as long as the measure(s) function.

CONCEPT: Water & Energy Services, or other certified vendor, contacts customers it ascertains are interested in buying resource efficiency as PAYS® products and develops a project and analysis. \$500 is added to the cost of all measures to cover the costs for adding charges to the bill (\$200) and consumer assurance (\$300). The customer signs a Customer Agreement form. The Certification Agent reviews the project and verifies customer-provided inputs by telephone. Vendors and the Certification Agent each have access to the PAYS® Analysis Tool so they can establish payment amounts and terms for projects that qualify. Upon Certification Agent approval, the vendor installs measures (e.g., toilets, showerheads, boiler replacements or repairs, controls, lighting, etc.) at its cost or using the capital fund established for measures. When completed, it sends an invoice to the Certification Agent who may inspect the project or contact the customer to verify completion. The invoice is sent to the utility, which adds the charge to the monthly bills for the duration of the payment stream, and to the capital provider who pays the vendor for the completed work.

If a measure stops working, the customer contacts the vendor which must fix the measure within a reasonable period of time or the payment amount for that measure stops. Vendors must be

bonded or post an irrevocable letter of credit of sufficient size to ensure compliance. If the non-working measure is fixed and if the repair and replacement costs are not included in the contract, the cost for the repair or replacement can be collected by extending the term (but not the amount) of the payments.

NOTE: Water & Energy Services have located a supplier of capital to pay for the up-front cost of qualifying projects at a rate of approximately 5% at the time of this research, providing a “borrower” could be located. PAYS® does not technically involve a borrower since the obligation to pay for permanent measures runs with the meter, and is not assigned to an individual. However, an entity, for example the Certification Agent, might be able to borrow the money to be used to pay the upfront costs for measures, providing it had a contract with the utility assuring repayment of measure costs as recommended in this study.

Lighting Retrofit Option (Cost Effective)

NOTE: Originally PAYS America envisioned separating out data for public and commercial buildings into two options. After review of the data, combining these two options into one makes more sense. Additionally, although this option was initially to be limited to lighting, requests from Ms. Wilbers and data provided by Mr. George Sterling of Energy Systems Group have allowed for a broadening of this option to include non-lighting measures.

PURPOSE: A low cost vendor driven lighting retrofit program targeted to municipal, state, federal and other commercial buildings in which delamping and fixture replacement are used to lower annual operating expenses and all ratepayers' tax burden. As this effort gains exposure, it can be expanded to other buildings receiving significant public funding (e.g., public hospitals, colleges, etc.). As noted below, other measures that qualify may be included as PAYS® products.

REQUIREMENTS:

- Utility adds PAYS® charge to customer's monthly bill and assigns obligation to the meter.
- Individual PAYS® charges are calculated by the vendor using PAYS® Analysis Tool.
- The Certification Agent verifies analyses and assumptions (by phone).

SUPPLIER: Lighting Service, Inc. and Energy Systems Group (Vendor) have identified several lighting retrofit projects in or near the St. Louis area. As shown in Appendices 8 and 9, measures recommended in all three submitted projects qualify as PAYS® products assuming capital at 8%. Both companies will warranty the measures for the duration of the payment term (but the cost for any repairs and replacement will be recovered by increasing the payment term). A \$500 fee to pay for customer assurance (\$300) and utility billing (\$200) has been included in Lighting Service, Inc.'s total cost and would be included for any basic lighting project. A \$1,000 fee to pay for customer assurance (\$700) and utility billing (\$300) has been included in Energy Systems Group's total cost to reflect the added cost of more custom projects (which will have more analysis to verify and may have multiple terms PDCs on each utility bill).

OFFER: Managers of publicly financed buildings can purchase lighting retrofits (and other cost effective resource efficiency measures) as PAYS® products. These purchases will be tariffed charges designed to lower the customers' (state, municipality or federal agency) utility bills, the obligation is assigned to a meter, and the project does not involve a loan or lease. Since the customer is not obligated to do anything other than continuing to pay its electric bill as long as it remains a customer at that location, there should be no need for budgetary adjustments or approvals, voter or Board approvals and perhaps no need to meet traditional "purchase" requirements (e.g., public notice requirements).

CONCEPT: For basic lighting projects, Vendor contacts the customer, proposes a project that qualifies based on reasonable assumptions provided by the customer, standard savings calculations (watts replaced and cost thereof), and project approval determined by the PAYS® Analysis Tool. The customer signs a Customer Agreement Form that stipulates all program obligations including disclosure of the charge to future owners of or bill payers at that location by the building's owner. The signed proposal is sent to the Certification Agent for review

(contacts with the customer to verify inputs and a cursory review of lighting savings estimates – watts in and out -- and other inputs to check on custom project analyses). When approved, Vendor implements the project at no up-front cost to the customer.

Custom projects involving other measures may require additional consumer assurance. The higher fee should cover the costs for additional analysis when required.

When the work is completed, an invoice is sent to the utility and copied to the Certification Agent. The Certification Agent will either inspect the project or complete a telephone survey to verify completion and acceptance of the work.

The customer is obligated to pay PAYS® charges for as long as the measures function and it remains a customer at that location, regardless of changes in use of the building. If the customer sells, leases, or quits occupancy of the building, the next customer at that location assumes the payment obligation. For those projects that are not vendor-financed, the contractor (which must be bonded or post an irrevocable letter of credit) is paid upon completion of the work and Certification Agent verification and the monthly payments are directed to the capital provider (e.g., the utility or third party capital provider).

Large Commercial/Industrial (Manufacturer) Option (Cost Effective)

PURPOSE: A customer/vendor/IAC driven program targeted to larger customers and larger buildings.

REQUIREMENTS:

- Utility adds PAYS® charge to customer's monthly bill and assigns obligation to the meter.
- Individual PAYS® charges are calculated by the IAC using the PAYS® Analysis Tool.
- The IAC verifies analyses and assumptions.

SUPPLIER: IAC of the University of Missouri-Rolla currently offers a fee-based program designed to help its industry partners collaboratively plan, develop, and adopt cleaner and more energy-efficient technologies and practices. (IAC also provides its services to schools and hospitals and could also provide them to municipalities). IAC has identified 45 retrofit projects in St. Louis, Jefferson City and Cape Girardeau for 45 businesses that together have gross sales of more than \$1.2 billion dollars and more than 8,000 employees. These projects include retrofits to motors and drives, lighting, HVAC and compressed air systems. 44 of these projects have paybacks of less than 2.5 years yet most of them have not been implemented. Even assuming interest rates of 8%, each of these 44 projects qualify as PAYS® products (see Appendix 10). PAYS® is designed to overcome the implementation barriers that have prevented these companies from addressing this economic and energy inefficiency.

Given the reliability of bill payment by these customers and the importance of economic development in these times, a capital pool targeted to these customers could be easily created by a bond fund, AmerenUE, energy service companies (ESCOs), or other third-party capital providers. The total budget for the identified 45 projects is less than two million dollars, well within the range of funds discussed with Ms. Jeannine Larm of the United Missouri Bank in St. Louis (one of the two financial institutions contacted). Contractors would be required to warranty measures for the duration of the payment term (but the cost for any repairs and replacement can be recovered by increasing the payment term or by embedding the costs for extended warranties and maintenance in a project's cost). A \$1,500 fee included in each project's total cost is divided between the utility (\$200) and the IAC (\$1,300) and is used to pay for costs associated with utility billing and customer assurance.

OFFER: Large customers or vendors can use PAYS® to arrange the purchase of cost-effective projects recommended to them by IAC, vendors, or their staff energy managers. Since these purchases will be tariffed charges designed to lower the customers' utility bills and the obligation is assigned to a meter, the project does not involve a loan or lease which obligates the customer to anything other than continuing to pay their electric bill as long as they remain a customer at that location. There is no up-front payment and the monthly payments are designed to be lower than the estimated savings. Offering these customers lower bills without any long-term commitment or impact to their books (i.e., debt to equity ratings) should eliminate most customers' reluctance to purchase resource efficiency.

CONCEPT: IAC or a vendor contacts the customer and proposes a project that qualifies based on reasonable assumptions provided by the customer. IAC completes its standard analysis (either on

a fee basis as it has to date, with the cost rolled into the project's cost, or, if possible, with a revolving fund established for this purpose which would be replenished by the aforementioned charges to each project). The IAC reviews each project's actual cost and estimated savings using the PAYS® Analysis Tool. The customer signs an IAC prepared Customer Agreement Form that stipulates all program obligations including building owner disclosure of the charge to future owners of or bill payers at that location. When approved, the contractor implements the project at no up-front cost to the customer.

When the work is completed, an invoice is sent to the utility and copied to the IAC. The IAC will either inspect the project or complete a telephone survey to verify completion and acceptance of the work.

The customer is obligated to pay PAYS® charges for as long as the measures function and it remains a customer at that location, regardless of changes to use of the building. If the customer sells, leases, or quits occupancy of the building, the next customer at that location assumes the payment obligation. For those projects that are not vendor (i.e., ESCO) financed, the contractor (which must be bonded or post an irrevocable letter of credit) is paid upon completion of the work and IAC verification and the monthly payments are directed to the capital provider (e.g., the utility or third party capital provider).

Recommendations

PAYS America believes there is sufficient justification (i.e., cost effective opportunities, customer interest, and interested vendors) to warrant setting up the PAYS® infrastructure and implementing the recommended PAYS® efforts in Missouri.

If AmerenUE and the Collaborative agree that, in spite of low energy rates, the PAYS® system can be used to make possible customer purchase of resource efficiency products more effectively and at less cost than any other proven system, the real work in designing a PAYS® effort for Missouri will begin.

If AmerenUE, the Missouri Residential & Commercial Energy Efficiency Collaborative (Collaborative), or the Missouri Public Service Commission (Commission) decides to implement a PAYS® system in Missouri, interested parties should work together with expert assistance to develop detailed program designs. A program design provides a complete road map for those entrusted with implementing a PAYS® system or any resource efficiency program. Such a design should clearly prescribe what offers can be made to which customers, how they may be made, who should be permitted to make them, and how consumer assurance is to be provided. All program forms and contracts, product certification criteria, vendor certification protocols, warranty procedures, and utility billing system changes (including how information about PAYS® should be depicted on monthly bills) should be clearly specified before any customer contacts are made. Taking the time to ensure that operating details have been thought through eliminates the problem of program decisions being made in crises by field staff, who often make different decisions than policy makers or those expert in PAYS® and resource efficiency efforts. Public Service Company of New Hampshire's and New Hampshire Electric Cooperative's April 12, 2001 filing to the New Hampshire Public Utilities Commission, "Pay-As-You-Save Energy Efficiency Products Pilot Program Design" is an example of such a program design.

However, the first step would be for the Collaborative or one of the parties to request that the Commission appoint an Independent Expert to work with the parties and expert consultants to develop the program designs. Given the myriad details and different interests of the parties (e.g., utilities may be concerned about lost revenues, vendors may want unbridled access to the PAYS® system, consumer advocates may want both reasonable and unreasonable consumer protections, etc.), it is unlikely consensus will be reached. A trusted expert answerable only to the Commission could make unbiased recommendations when consensus was not possible.

If the parties decide to set up the PAYS® infrastructure, the set-up costs (e.g., changes to the utilities' billing and collection system and the cost to develop program designs) should be borne by all customers through rates (much as they share the costs of all regulated utility infrastructure). If Missouri decides to implement a PAYS® system, the infrastructure costs can be amortized over many years and the sale of many products. Once the infrastructure is in place, there should be little cost to the utilities inasmuch as they already provide billing and collection services for all customers. Since, for the first time, all customers (i.e., tenants, building owners, those with and without capital or debt capacity, etc.) would effectively be able to participate in a resource efficiency market, there is ample justification to share the costs for building the PAYS® infrastructure among all customers who will be effectively eligible to participate. However, PAYS America realizes that this is a policy decision that must be resolved by all the parties.

For planning purposes, in testimony before the Connecticut Department of Public Utility Control, Connecticut Light and Power (testimony from Kathleen Culligan, CL&P Late File Exhibit HD-04, Q-LF-024. Docket No. 03-01-01, March 2003) claimed billing system changes required to accommodate a PAYS® effort might cost \$104,600. While this amount is probably excessive, even if this were the real cost, it is inconsequential compared to the environmental, economic and system benefits realized by all Missourians from the millions of dollars that a PAYS® marketplace could cause to be invested by customers in cost effective resource efficiency.

In New Hampshire, utilities' external costs for development of testimony and development of program designs (i.e., the April 12, 2001 submission to the New Hampshire Public Utilities Commission and subsequent consulting) was approximately \$100,000. This appears to have been a good investment based on the more than 360 customers buying energy efficiency measures (including eligible projects in process or awaiting utility or town approval) totaling more than \$1.38 million dollars invested by customers in resource efficiency projects (almost all of this total is money that will be paid by the customers who receive the savings). This preliminary feasibility study identified cost effective opportunities for Missouri customers that greatly exceed the scope of the New Hampshire pilots.

PAYS America is available and interested in helping the parties to implement a PAYS® effort in Missouri should they choose to do so.

Appendices

Appendix

- 1 UMB Bank Letter (Jeannine Larm)**
- 2 St. Louis & Jefferson City Electric Rates**
- 3 St. Louis & Jefferson City Natural Gas Rates**
- 4 CFL Savings Calculation**
- 5 PAYS® Analysis of Weatherization Data**
- 6 Efficient Clothes Washer Savings Calculation**
- 7 Water & Energy Savings Data Corporation Data**
- 8 Public Building (School) Lighting Retrofit**
- 9 PAYS® Analysis of Energy Systems Group Data**
- 10 PAYS® Analysis of IAC Data**
- 11 PAYS Analysis Tool**
- 12 List of Resources**