4 CSR 240-22.070

Appendix B

DSM Implementation Plan

February 5, 2008

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1. Executive Summary

1.1. Summary of Statutory Requirements.

CSR 240-22 requires that electric utilities in Missouri prepare an integrated resource plan that, "[c]onsider[s] and analyze[s] demand-side efficiency and energy management measures on an equivalent basis with supply-side alternatives in the resource planning process." (CSR 240.22.101(2)(A)) Section 240.22.050 prescribes the elements of the demand-side analysis, including reporting requirements. This implementation plan represents compliance with several of those reporting requirements, including 240.22.050.11(G), a description of each demand-side program developed for initial screening pursuant to section (6) of this rule, and 240.22.050.11(J) the process and impact evaluation plans for demand-side programs that are included in the referred resource plan as required by section (9) of this rule.

The implementation plan presented here covers a three year implementation period beginning on June 1, 2008 and extending through May 31, 2011. The following table summarizes the estimated energy and demand savings and costs estimated for this period.

Table 1: Estimated Savings and Costs for the Implementation Period

	2008	2009	2010
Estimated energy savings (MWh)	123,835	269,185	429,434
Estimated demand reduction (MW)	106	131	161
Estimated costs (Program costs only)	$24.5 M	$31.9 M	$39.1 M

This Plan represents AmerenUE's (the Company) commitment to meeting these savings levels and by doing so to enhance the value we deliver for our customers. The Company has worked with a diverse group of stakeholders to develop a portfolio of programs that uses best practice program design and delivery to reach all key customer groups with cost-effective energy efficiency options. The portfolio has been crafted to meet clear public policy and corporate objectives, and represents the first step in an ongoing process to offer the best customer energy management services possible to our customers.

1.2. Summary of the Portfolio

The following table summarizes the portfolio the Company proposes. This is a portfolio that:

- Meets savings and spending targets that are consistent with discussions held with AmerenUE's stakeholders.
- Is cost-effective at the measure, program, and portfolio level. The overall portfolio benefit-cost ratio using the Total Resource Cost test is 1.71.
- Is based on best practice. The program designs selected for this portfolio are based on a review of program experience across the country as reflected in various studies of best

practice by the American Council for an Energy Efficient Economy, the Oregon Energy Trust, the Consortium for Energy Efficiency, and the U.S. Environmental Protection Agency. The portfolio also reflects the suggestions of and review by Missouri stakeholders.

- Lays groundwork for market transformation. All parties agree that the ultimate objective served by the programs is the transformation of the market for energy services in Ameren's Union Electric service territory, such that consumers are able to use the information and tools provided over time through these programs to take control of their energy management decisions. Our proposed programs aim to build the capability of both sides of this market.
- Is flexible and manages risk. Although the Plan presented here represents our best initial effort to design programs that will meet our objectives, inevitably some programs will work better than expected while some will not work as well as expected. Our Plan is based on a formal assessment of the risks associated with each program and is designed to manage those risks. One key element of that risk management strategy is the flexibility to shift resources within the portfolio – to modify portfolio composition and risk as the market responds to our programs.
- Is scalable, to enable the Company to ramp programs up or down as needed. At this stage in the process, predicting precisely how each program will be met by the market is not possible. Therefore, having programs within the portfolio that can be quickly scaled up or down is essential to enable a rapid response to market changes. In particular, it is important that the portfolio include programs that can be efficiently scaled up as annual targets increase.
- Represents a diverse cross-section of opportunities for customers of all rate classes to participate in the programs.
- To the extent possible, coordinates with other exiting entities/organizations. The Company is also working with Laclede Gas to develop joint natural gas/electric energy efficiency programs that address opportunities to improve the heat gain/loss characteristics of buildings.

The following table summarizes portfolio energy savings, demand savings, program costs, and cost-effectiveness for the three year planning period.

Table 2: AmerenUE Portfolio Summary

Program	Total Annual MWh			Total Annual MW			Annual Program Costs			Cost-effectiveness	
	2008	2009	2010	2008	2009	2010	2008	2009	2010	TRC	UCT
ENERGY STAR Homes Program	0	0	154	0.0	0.0	0.1	$0.0	$0.1	$0.2	1.00	1.18
Home Energy Performance	3,480	8,195	14,463	0.5	1.2	2.0	$0.8	$1.1	$1.4	2.39	3.19
Residential DR - CPP w/ Smart Thermostat	0	0	159	0.0	0.0	1.8	$0.0	$0.0	$0.5	1.37	1.30
Residential DR - Direct Load Control	495	1,013	1,554	5.5	11.3	17.3	$1.1	$1.3	$1.5	1.93	1.78
Residential HVAC Diagnostics & Tune-Up	0	5,904	13,692	0.0	1.2	2.8	$0.0	$2.1	$2.8	1.55	1.92
Residential Lighting & Appliances	28,749	65,928	112,670	2.4	5.6	9.6	$3.1	$4.1	$5.3	2.29	3.99
Residential Low Income *	4,581	9,162	13,742	0.3	0.5	0.8	$3.0	$3.0	$3.1	0.88	1.00
Residential Multifamily	10,012	24,136	34,026	1.8	4.3	6.2	$0.7	$1.0	$1.4	2.63	3.26
Residential New HVAC	0	1,464	3,394	0.0	0.3	0.7	$0.0	$0.5	$0.7	1.71	2.13
C&I Custom	27,099	54,198	81,297	3.5	7.0	10.6	$4.2	$4.3	$4.4	2.23	2.94
C&I Prescriptive	32,470	68,985	109,738	4.8	10.5	16.6	$4.9	$6.5	$8.3	1.89	2.44
C&I Retro-commissioning	11,573	24,007	37,357	1.4	2.8	4.4	$0.6	$0.6	$0.7	3.17	6.78
Commercial Demand Credit	760	760	760	38.0	38.0	38.0	$0.4	$0.4	$0.4	1.56	1.08
Commercial DR - CPP w/ Smart Thermostat	0	0	178	0.0	0.0	2.0	$0.0	$0.0	$0.5	1.60	1.51
Commercial New Construction	817	1,634	2,451	0.3	0.5	0.8	$0.7	$0.7	$0.7	1.14	1.35
Industrial Interruptible Tariff	3,800	3,800	3,800	47.5	47.5	47.5	$2.0	$2.0	$2.1	1.59	0.36
Education Program	0	0	0	0.0	0.0	0.0	$0.5	$0.7	$0.9		
Evaluation, Measurement, and Verification	0	0	0	0.0	0.0	0.0	$1.1	$1.4	$1.7		
Information Program	0	0	0	0.0	0.0	0.0	$0.5	$0.7	$0.9		
Portfolio Administration	0	0	0	0.0	0.0	0.0	$1.1	$1.4	$1.7		
Total Portfolio	123,835	269,185	429,434	105.9	130.7	161.1	$24.5	$31.9	$39.1	1.71	2.04

* AmerenUE has increased the budget for the Residential Low Income Program from $1.2 Million to $3.0 Million to further our commitment to this segment of our customer base.

1.3. The Planning Process

The Company's Plan reflects a detailed analysis process that included the economic screening of close to 865 energy efficiency measures, a review of utility program design best practices and a formal uncertainty and risk analysis. This process is described in more detail in Section 4 and included the following steps:

- Assembly of a list of viable energy efficiency measures for all customer classes and multiple building/industry types. The primary source for the measure list was the Database for Energy Efficiency Resources (DEER) developed and maintained by the California Energy Commission. This database is a nationally recognized source for such information.

- Collection of energy savings and cost information from each measure. The primary source for non-weather-sensitive measure data was the DEER database. The energy savings associated with measures that are weather-sensitive were estimated by ICF International using the DOE-2 building energy simulation model.[1]

- Economic screening of the measures using the Company's avoided electric costs inclusive of an estimate of the cost of carbon (estimated at $15/ton beginning in 2012 and rising at 5.0% per year). This screening process was based on the probable

[1] Non-weather-sensitive measures are those for which energy savings do not vary significantly as a function of local weather. These measures include many lighting technologies, motors, food service equipment and many industrial process improvement measures.

environmental cost test as defined by the rule. The screening was conducted by ICF International using its energy efficiency program analysis model.

- Bundling measures that passed the screening process into logical program "elements", such as residential lighting and appliances, commercial prescriptive incentives, etc.
- Expanding these basic program elements into program templates that describe program element structure, recruiting, implementation, incentive, administrative and evaluation strategies.
- Collection of program element data such as incentive levels, administrative, marketing and implementation costs and participation estimates.
- Screening the program elements for cost-effectiveness using the total resource cost test and utility cost test with the ICF portfolio analysis model.
- Adjusting individual program participation estimates to achieve portfolio balance.

1.4. The Challenge of Understanding and Managing Program and Portfolio Risk

Several types of risk must be accounted for in portfolio design and management:

- **Performance risk.** The risk that, due to design or implementation flaws, the program does not deliver expected energy savings. This risk is common to all program types.
- **Technology risk.** The risk that technologies targeted by a program fail to deliver the energy savings expected. This risk is concentrated in programs that target emerging technologies; systems that are aggregates of specific technologies, and/or systems in which energy use is strongly influenced by external factors (e.g. customer behavior, economic conditions, etc).
- **Market risk.** The risk that, either because of a poor economic climate or the availability of better investments, customers choose not to participate in a program.
- **Evaluation risk.** The risk that independent EM&V will, based on different assumptions, conclude that energy savings fall short of what the implementers have estimated.

Typically, the first three types of risk are dealt with, first, through program design intended to minimize risk within a program and, second, by ensuring that the portfolio contains a mix of program types (different services, delivery mechanisms, providers, incentive types and levels, etc.) sufficient to avoid over-reliance on any one approach, technology or market.

Evaluation risk is addressed by commencing evaluation activities at the same time as programs are designed. Thus, evaluation protocols are understood by all parties at the outset, and the evaluation process is continuous as opposed to ex-post, allowing program implementers to adjust design and delivery to real-time information from the evaluators. This approach views evaluation not only as an independent verification of performance for regulatory purposes, but also as a vital input to a continuous process of program improvement.

Section 3 provides a more detailed discussion of portfolio risk and risk management. Essential to the Company's risk management strategy is retaining sufficient flexibility to reallocate funds

across program elements, including the ability to modify, add/or discontinue programs as dictated by additional market research and actual implementation experience.

The proposed portfolio represents the initial effort to design a cost-effective mix of programs with a high probability of success. We will continue to work with stakeholders to develop final and detailed program designs and implementation plans. Continuing market research will also influence ongoing plan direction. Based on the information compiled through this process, these initial program designs most likely will be modified to strengthen the program offerings.

1.5. The Company's Proposed Programs

The Company, in cooperation with a broad group of stakeholders, has developed an aggressive portfolio of energy efficiency and demand-response programs as part of its integrated resource plan that will meet these statutory requirements. The portfolio as a whole is cost-effective with an TRC test benefit-cost ratio of 1.71. The portfolio was constructed to offset at least 25% of load and demand growth by 2016, and achieve a minimum reduction of 230 MW by 2012 and 540 MW by 2025.

The portfolio is built around two broad programs, each of which contains several program elements intended to provide a diverse range of energy efficiency options for all customer classes.

- Residential Energy Solutions offers a wide range of options for residential customer energy management. The program is intended to offer customers multiple points of entry to the services offered by the Company, while at the same time promoting comprehensive actions that can create the most value for customers. An important objective of this program is to use customer education, training, and technology to build a foundation for market transformation. During the first implementation cycle, we expect that most program elements will be technology-based and focused on relatively simple customer actions. Coupled with a strong consumer awareness and education effort, our objective is to transform initial technology focused services into more comprehensive "whole home" solutions. The specific elements of the proposed Residential Solutions programs include:

    - **Lighting and appliance rebates**. The initial focus will be on buying down the cost of compact fluorescent light (CFL) bulbs at the retail level. The program will function very much like the U.S. EPA's Change-a-Light campaign. Over time consumer appliance and electronics may be added to the program. In adherence with the Energy Independence and Security Act signed into law in December of 2007, AmerenUE will continue to review and analyze the cost and benefits associated with evolving residential lighting opportunities to maximize benefits to our customers. AmerenUE is also committed to working with stakeholders to find a recycling solution for the expected increase in CFLs requiring disposal through the implementation of these replacement programs.

    - **Central air conditioner diagnostics and tune-up**. The program will train HVAC technicians in proper refrigerant charge and airflow, and will offer rebates to these technicians for application of these techniques. This program will take advantage of the in-home HVAC technician visit to install air conditioner control switches and possibly smart thermostats.

    - **New central air conditioner proper installation incentives**. Incentives will be provided to HVAC dealers for the proper sizing and installation of new central air conditioning

systems. This program could take advantage of the in-home HVAC technician visit to install air conditioner control switches and possibly smart thermostats.

- **A Multi-Family Program**. The program will engage customers as well as recruit trade allies, ie. private contractors, to promote the installation of energy efficient lighting in common areas as well as provide energy audits for the installation of measures in tenant spaces related to central AC unit diagnostics and tune-up. Incentives would be paid to individuals that implemented the measure.
- **Home Energy Performance**. Incentives will be provided for a bundle of electricity-saving measures will be promoted to owners of all-electric homes.
- **Web-based residential energy audits**. The Company intends to use this audit as one key portal to the broader portfolio of residential solutions. Consumers using the audit will be directed to specific incentive opportunities. Plans already are underway to install this element and costs will not be charged through the portfolio budget.
- **ENERGY STAR Homes Program**. Incentives will be provided to residential builders of homes with a HERS score of 85 or below. The incentives would cover the incremental costs for the installation of efficient HVAC equipment, lighting and shell measures in new homes.
- **Residential Low Income.** The program will target low-income owners of single family homes and will deliver long-term energy savings and bill reductions to low-income customers through a variety of cost-effective lighting and appliance discounts and other building and shell improvements.
- **Direct Load Control**. Participating customers will have an air conditioner control switch installed. The Company will use this to directly control customer load during peak events.
- **Critical Peak Pricing with a Smart Thermostat**. In 2009, the Company expects to offer a pricing program that flows through to customers. The expectation is that this pricing program will be offered after the launch of the direct load control program and will offer customers Smart Thermostat technology. The rate tiers will be structured such that by shifting consumption away from critical peak periods, customers can reduce bills below what they otherwise would pay under standard rate schedules. An evaluation of the Company's pilot CPP program indicated statistically significant consumer response to the CPP tariff when bundled with a technology component such as Smart Thermostat.

- Business Energy Solutions offers a complementary set of energy management options to commercial and industrial customers. A wide range of Individual technology or device incentives will be available, but the objective of the program over time is to move customers towards comprehensive solutions. Customers will be able to enter the program through any individual program element, although the Company will encourage customers to use building benchmarking services available through the program as a first step toward adoption of a "whole building" perspective on energy management. Specific program elements will include:
  - **Prescriptive incentives**. Prescriptive Incentives for common commercial and industrial efficiency measures such as improved lighting technologies, efficient commercial food

service equipment, premium efficiency motors and so forth. Incentives will be set and paid on a per measure basis.

- **Custom incentives.** Custom incentives for more complex measures, including industrial process improvements. Any measure that would improve a customer's electric energy efficiency will be eligible provided that it is cost-effective. Incentive levels will be project specific based on prescribed calculations that will include caps on maximum incentives.
- **Retro-Commissioning incentives**. Retro-commissioning involves an assessment of building energy operating performance and improvements to that performance through proper use of energy systems controls and installation of measures such as ventilation and lighting controls. The program will underwrite a portion of retro-commissioning studies and actual improvements based on measured improvements. Building energy benchmarking will be a required element of this program.
- **Commercial New Construction**. New construction design assistance and incentives will be provided to building designers and architects and to building owners for surpassing standard new construction practice by 20 percent.
- **Commercial Demand Credit**. Program will be offered to large commercial facilities with peak demand reduction capabilities of 50 kW or greater at a single premise and an interval meter
- **Industrial Interruptible Tariff**. Commercial and industrial customers willing to have their service interrupted by the Company at times of peak demand enroll in the Program by signing an interruptible service contract with a fixed term (e.g. one, three and/or five years).
- **Critical Peak Pricing with a Smart Thermostat**. In 2009, the Company expects to offer a pricing program that flows through to customers. The expectation is that this pricing program will be offered after the launch of the direct load control program and will offer customers Smart Thermostat technology. The rate tiers will be structured such that by shifting consumption away from critical peak periods, customers can reduce bills below what they otherwise would pay under standard rate schedules. An evaluation of the Company's pilot CPP program indicated statistically significant consumer response to the CPP tariff when bundled with a technology component such as Smart Thermostat.

1.6. The Program Evaluation Process

Program evaluation, measurement, and verification (EM&V) activities are central to the success of the AmerenUE' portfolio, and are used to estimate program energy savings impacts, monitor program performance, and assure that incentives paid are proportionate with achieved energy savings (i.e., preventing overpayment). These activities serve as a way to audit, both internally and independently, the actual level of energy savings being delivered and to maximize energy savings achieved for the given program budget amount.

The Company intends to retain an evaluation contractor to provide an independent evaluation of portfolio energy savings. The Company envisions that interim impact and process evaluations will occur annually with a final evaluation conducted at the end of the implementation period.

The objective of the interim evaluations will be to advise the Company and it's stakeholders of any emerging issues with program delivery or savings acquisition.

1.7. Implementing the Plan

Achieving the Company's load reduction objectives requires effective and efficient portfolio and program management. However, the Company has not had prior experience with design and implementation of such an aggressive suite of programs. Therefore, this first Plan represents a vision not only for an evolving portfolio of customer energy efficiency services, but for what will become a major new Company enterprise as well. We are committed to making this enterprise best-in-class based on the following basic principles:

- Attention to detail and performance.
- Our ability to succeed over the long-term requires that our plans look beyond the immediate three year horizon. What we do over the next three years must position us to succeed in the following three years and beyond.
- We will work closely with stakeholders to ensure that they are apprised of the portfolio's status and have the opportunity to provide input into evolving program design.

1.7.1. Overview of the Elements of Implementation

Successful implementation includes three key elements: (1) A sound implementation strategy; (2) An effective management strategy and (3) A plan for managing evaluation and quality assurance.

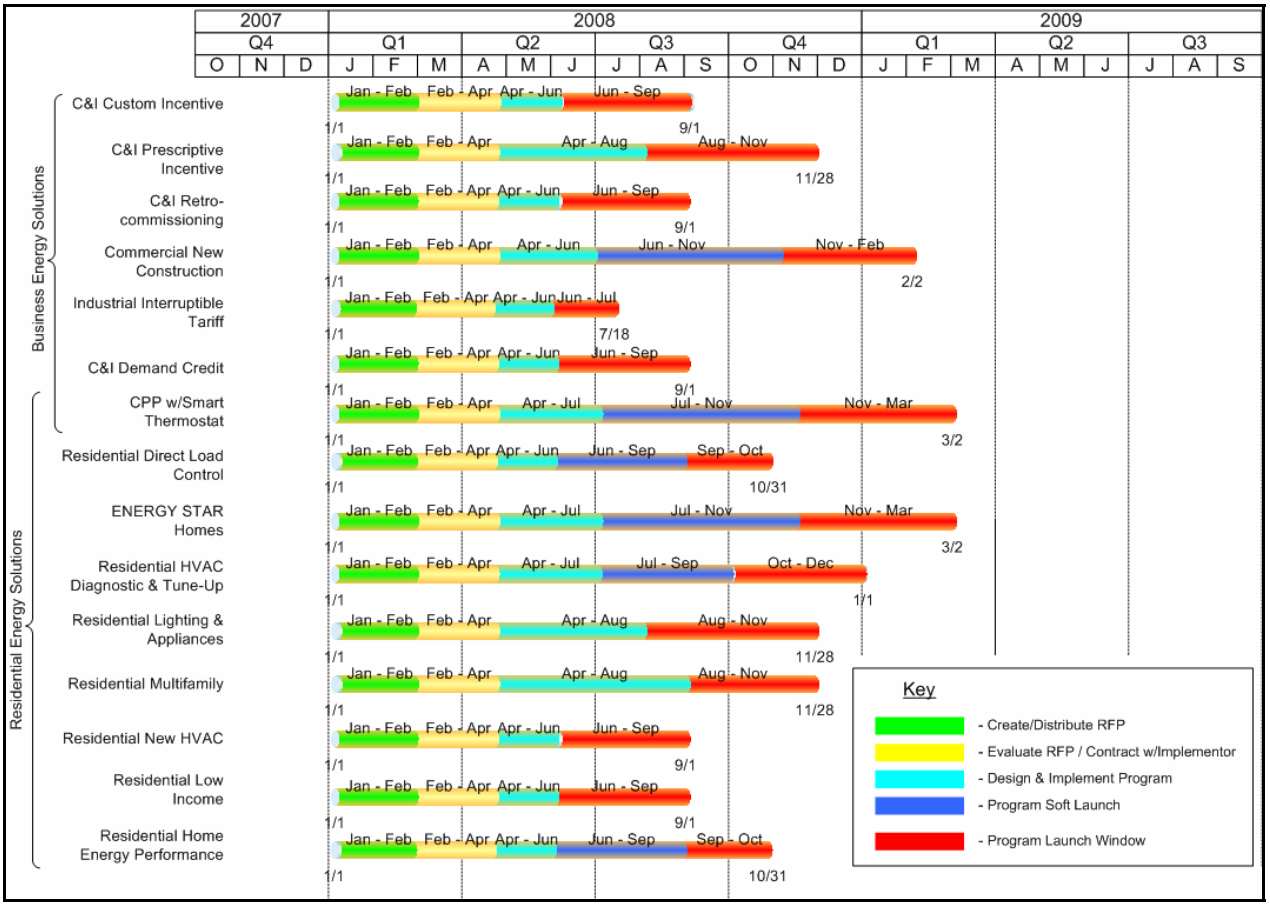
Implementation Strategy

Most programs will be implemented by third party contractors selected by the Company through competitive bid. The Company will explore the use of performance-based contracts that reward cost effective delivery of verified energy savings. The implementation contractors will be responsible for development of final detailed program designs and implementation plans, including all program participation and incentive forms and marketing collateral subject to approval by the Company. In most cases, the contractors will be responsible for customer recruitment, delivery of program services and incentive fulfillment, although the AmerenUE key account representatives will retain the primary relationships with the Company's key accounts.

The Company intends to issue requests for proposals (RFP) for programs in early 2008, and to have contracts in-place by May. Implementation contractors will have until the end of June to develop detailed program designs and implementation plans in consultation with the Company. Concurrent with the issuance of RFPs for the implementation contractors, AmerenUE will also issue a separate RFP for an Evaluation, Measurement and Verification (EM&V) contractor. The Company's expectation is to have the EM&V contractor under contractor prior to program design since program design and evaluation methodologies are directly linked. The Company intends to launch most programs in the third quarter of 2008.

Our proposed summary implementation schedule is shown below:

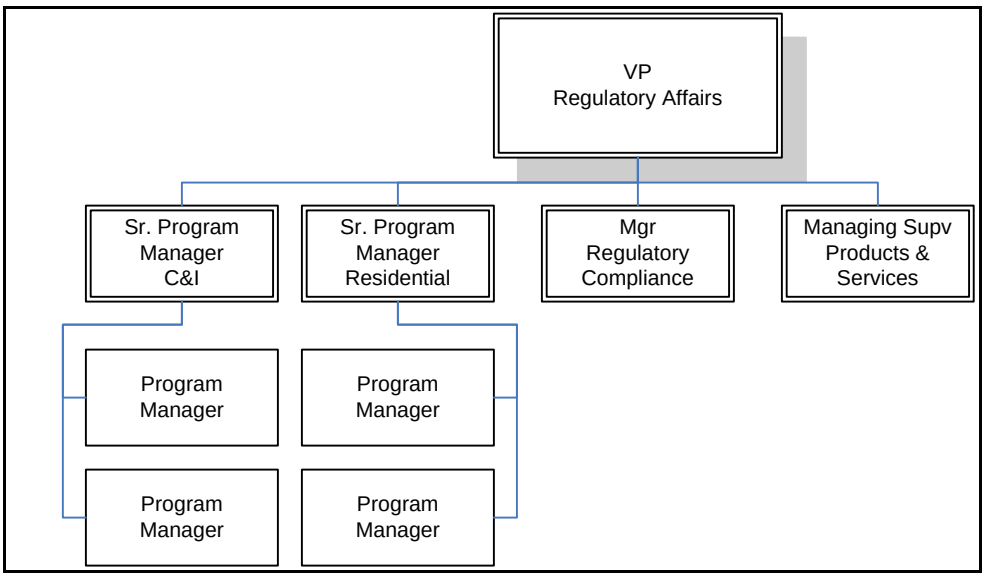
Figure 1: AmerenUE Energy Efficiency and Demand Response Program Implementation Schedule



Management strategy

The Company's program management strategy guides actual program implementation and encompasses a range of internal and external functions and both the portfolio and program level. The following figure illustrates the structure to be used by the Company for portfolio and program management.

Figure 2: AmerenUE Energy Efficiency and Demand Response Organization Chart



Several processes are instrumental to our management strategy:

Planning, Market Research and Analysis: The planning process is continuous; as the implementation process yields impact and process information, program designs and implementation will be reviewed and, as necessary, adjusted. This Plan was based on available data that did not include detailed information on our service territories baseline characteristics. The Company intends to create a strategy to identify, plan and execute specific market assessment and market research projects over the next three years in an effort to improve its ability to design and target cost-effective efficiency and demand-response programs. These projects could include:

- An appliance saturation study.
- Market characterization studies of key markets such as residential lighting, residential HVAC, commercial lighting, and new construction.
- Customer satisfaction surveys and focus groups designed to elicit customer feedback on program design and delivery.
- Program process evaluations to assess program design and implementation processes.

Portfolio Communications Plan: Each program element in the portfolio will have a specific marketing, communication and recruiting strategy. However, at the portfolio level, a broad communications strategy will be developed that addresses program branding, program

collateral standards, customer service standards for implementation contractors, use of Company's trademark by implementation contractors, call center and customer account representative training, web standards and integration with the Company's broader communications strategy.

Back Office Systems Development: Back-office systems for tracking, reporting and incentive fulfillment are a critical operational component of the efficiency portfolio. Accurate acquisition, storage and reporting of data are essential for portfolio management and goal achievement. The Company will develop a program and portfolio tracking system capable of providing timely information to evaluate portfolio and program performance and support adjustments in program efforts and focus.

Quality Assurance Strategy

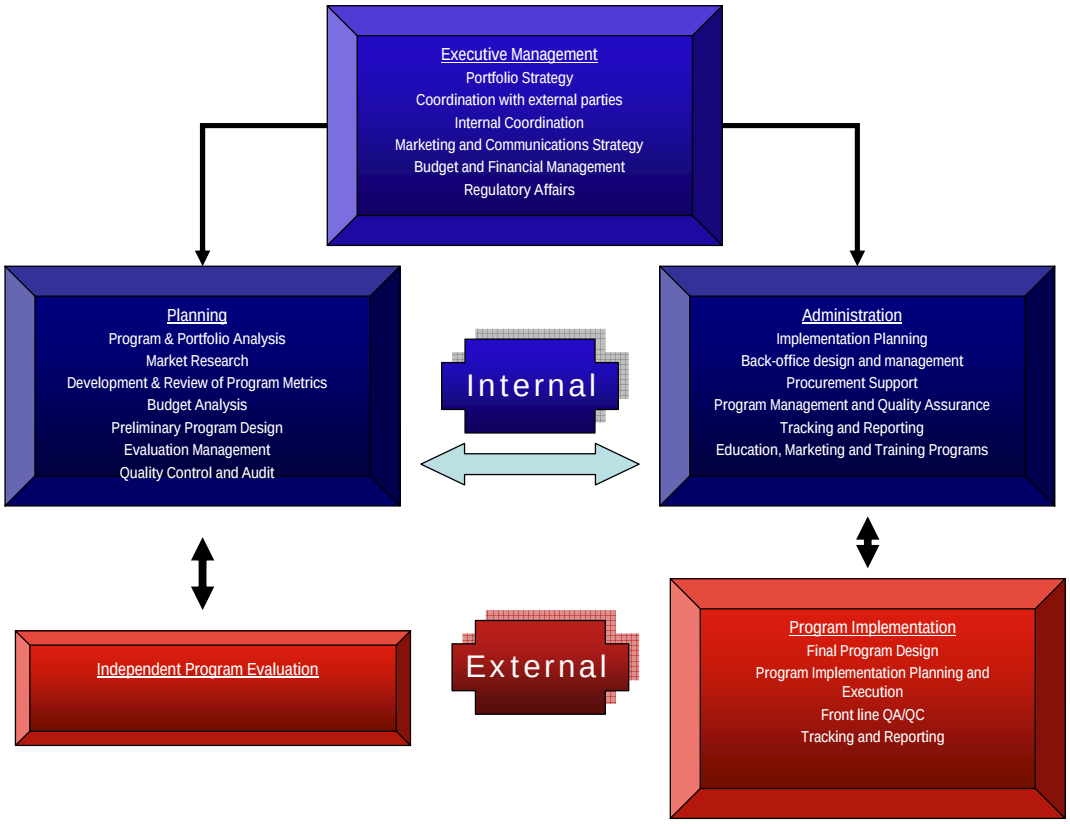
In addition to the required independent evaluation of portfolio of energy savings, the Company will implement an internal quality assurance system to ensure that financial incentives are paid only for those projects that are expected to yield verifiable energy savings. This process will include Company review of any incentive over a specified amount, and on-site verification of a sample of projects for each program. Implementation contractors will be responsible for maintaining an ongoing verification process and for documenting the results.

Finally, the Company will conduct ongoing process assessments of its programs to ensure continuous improvement. The Company will develop specific performance metrics for each program and program element and use reports from the tracking system to compare performance against these metrics, where necessary designing programs and implementation strategies.

1.8. Portfolio Management

Successful implementation of the Plan relies on an effective and efficient process for managing several key functions at the level of both the individual programs and the portfolio level. The following figure describes these functions.

Figure 3: Portfolio Management Functional Structure



Internal executive, planning and administrative functions are obviously closely linked. However, some separation between planning and administration is important to ensure arm's length quality control and auditing.

2. Introduction

The implementation of this Plan takes place in an environment characterized historically by the absence of consistent substantial utility investment in energy efficiency. Consumer understanding of energy management options is generally lower than in areas of the country exposed to sustained funding and active consumer awareness campaigns. Much of the infrastructure required to mount an aggressive energy efficiency investment program remains to be built. While the Company has built valuable relationships with key allies such as the green building community and low income weatherization providers our service territory does not have a well-established program delivery infrastructure.

Our immediate challenge is to begin from what is essentially a cold start and quickly build the infrastructure required to meet the first three year objectives. Delivering sustained value for customers means that we first must prove over the next three years our ability to design and manage effective programs. This puts a premium on development of a relatively compact portfolio of programs with straightforward, efficient, and proven designs that can be taken to the market quickly and reliably.

2.1. The Planning Process

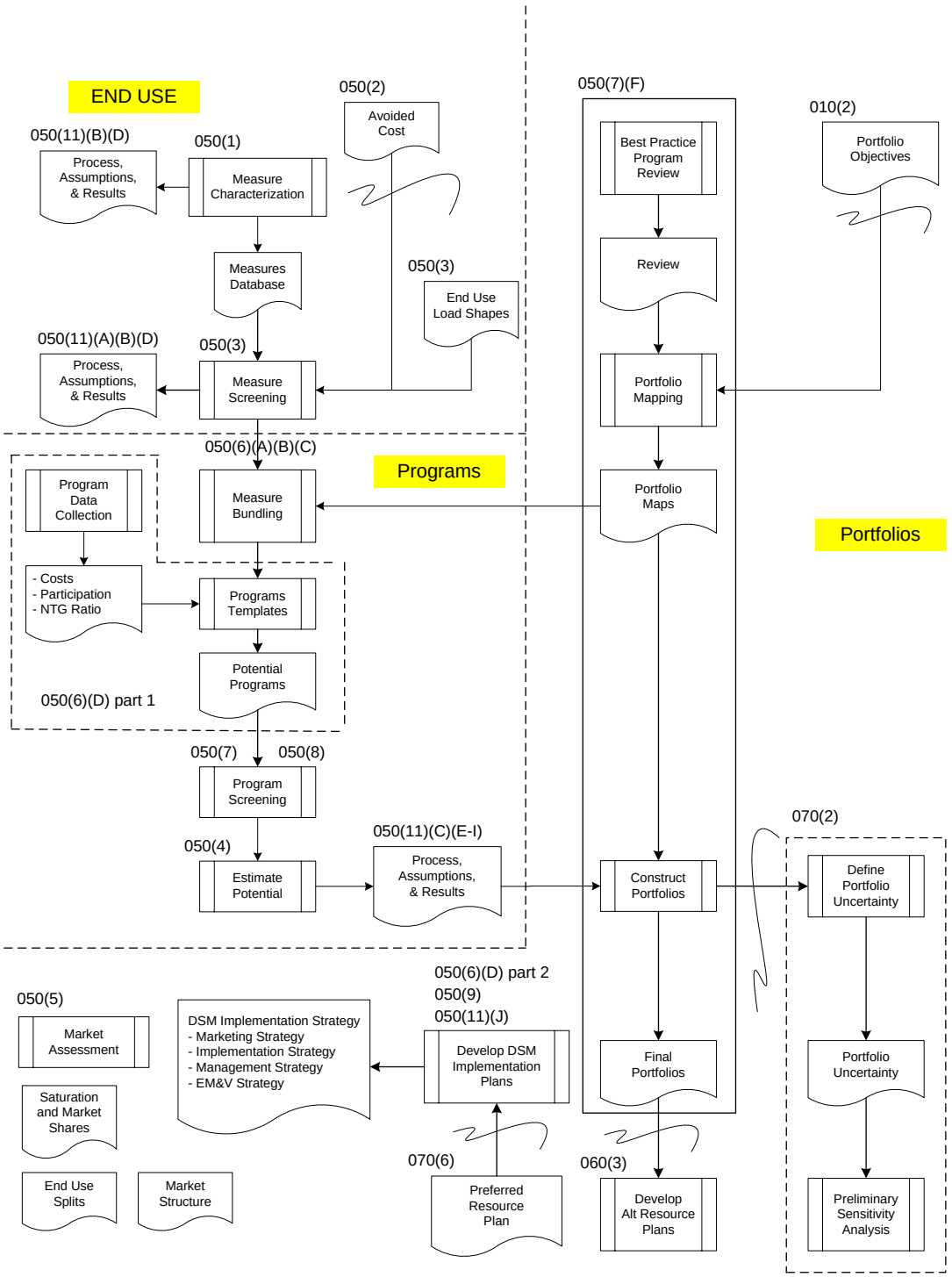
2.1.1. The Analysis Process

The portfolio proposed by the Company is the product of a multi-stage analysis process intended to gather and process the information required to determine program and portfolio cost-effectiveness and impacts as defined by CSR 240-22.050. ICF International was retained to provide support for the analysis, and the Company held six workshops and held several conference calls with stakeholders to review the analysis process and results. This plan benefited greatly from those discussions. The Company's portfolio was designed to satisfy a set of specific investment objectives for its portfolio based on a comprehensive bottom-up analysis of energy efficiency measures, best practice program designs and best estimates of program and portfolio costs and participation based on a review of other utilities' experience. The planning process is illustrated in Figure 4.

Table 3: AmerenUE DSM Stakeholder Workshops

Date	Planning Area(s)	Phase	Purpose
1/9/2007 10:00AM-3:00PM	Demand Side Management (Workshop 1)	Initiation	Overview of the proposed DSM planning process outlined in the ICF proposal.
2/6/2007 10:00AM-3:00PM	Demand Side Management (Workshop 2)	Initiation & Pre-Analysis	Review parties' comments, discuss proposed process, and potential waivers requests.
2/28/2007 10:00AM-12:30PM	Demand Side Management (teleconference)	Initiation	Finalize Waiver requests.
4/12/2007 10:00AM-4:00PM	Demand Side Management (teleconference)	Pre-Analysis	Discuss Measures Analysis
7/30/2007 9:00AM-12:00PM	Demand Side Management (teleconference)	Pre-Analysis	Cost-effective programs and portfolio
9/10/2007 12:30PM-3:30PM	Demand Side Management (teleconference)	Pre-Analysis	Rvw programs
10/05/07 2:00PM-3:00PM	Demand Side Management (teleconference)	Pre-Analysis	Electric and Gas cost sharing Portfolio that meet and exceed MO Goals
10/15/07 3:30PM-5:00PM	Demand Side Management (teleconference)	Pre-Analysis	Portfolios higher than MO goals

Figure 4: Demand-Side Analysis Process



Overview of the Analysis

The key source of data for the analysis of energy efficiency measures was the Database of Energy Efficiency Resources (DEER) maintained by the California Public Utilities Commission (CPUC) and California Energy Commission (CEC). This database is recognized as the most comprehensive and consistent database of such measures and regularly updated. Energy efficiency measure savings and costs for measures not affected by local climate were taken in most cases directly from this database. The savings associated with many measures, however, are affected by local climate. For example, the savings associated with an efficient central air conditioner or building insulation are directly related to the number of cooling and heating degree days experienced in a particular area. The savings associated with these measures were estimated using the DOE-2 building energy simulation model.

More than 865 measures were assessed for cost-effectiveness using the probable environmental benefits test; this test uses the sum of avoided utility costs and avoided probable environmental costs to quantify the savings obtained by substituting the end-use measure for supply resources. Avoided costs were provided by the Company and represent the market price of power, including an assumed cost of carbon that would be avoided by implementation of energy efficiency programs. Table 4 and Table 5 show the aggregate results of the measure screening.

Table 4: Results of the Measure Screening

Total number of measures screened	Total	Passing > 0.91	% > 0.91
Residential	191	109	57%
C&I	675	494	73%
Totals	**866**	**603**	**70%**

Table 5: Measure Types Passing the Probable Environmental Benefits Test

Residential Measures	Commercial Measures	Industrial Measures
Compact Fluorescent Lamps (screw-ins and pin-based)	Compact Fluorescent Lamps (screw-ins and pin-based)	Compact Fluorescent Lamps (screw-ins and pin-based)
T12 to T8 linear fluorescent lamps (various combinations)	T12 to T8 linear fluorescent lamps (various combinations)	T12 to T8 linear fluorescent lamps (various combinations)
LED Exit Signs	HID lighting upgrades	HID lighting upgrades
Electroluminescent Exit Signs	Occupancy Sensors	Occupancy Sensors
Central AC Refrigerant Charge	LED Exit Signs	LED Exit Signs
Increased Duct Size	Electroluminescent Exit Signs	Electroluminescent Exit Signs
Reduced Duct Leakage	Variable Speed Drives and Temperature Control for Chilled Water and Hot Water Loops	Industrial Motors
Correct Central AC Sizing		HVAC
Increase Blower Speed	Air Handler Coil Cleaning	Compressed Air Improvements (controls, optimization, VSD installations)
Reduced Infiltration	Optimized Outside Air - Ventilation	
14-SEER Central AC	Air Handler Scheduling	Fan improvements
ENERGY STAR Window AC	Variable Air Volume Retrofits	Pump Improvements
Ceiling Insulation	New Packaged Air Conditioning Units	Machine Drive
Wall Insulation		Process Controls

Door Insulation	New Chiller Units	Process Heating
Low-E Windows	Commercial Motors	Refrigeration
Hot Water Tank Wrap	Efficient Connectionless Steamer	Various Sector-Specific Process Improvements
Hot Water Pipe Insulation	Efficient Hot Food Holding Cabinet	Industrial Demand-response
Low-Flow Showerheads	Commercial Refrigeration Controls and Equipment Upgrades	
Faucet Aerators	New Construction Upgrades	
ENERGY STAR Ceiling Fan	Commercial Demand-response	
ENERGY STAR De-humidifier		
ENERGY STAR Dishwasher		
ENERGY STAR Freezer		
ENERGY STAR Home		
Home Demand-response		

Measures passing this cost-effectiveness screen were then bundled into programs, and incentives, program implementation and marketing costs were estimated based on similar programs implemented by other utilities. Participation rates for each program were also estimated based on a payback acceptance function that ties participation to a consumer's post-incentive payback period.

The product of per unit measure savings and the number of measures adopted (governed by the program participation rates) yields an estimate of annual gross savings. These savings must be adjusted to reflect program Net-to-Gross Ratios (NTGR). The NTGR reflects two effects. The first is the fact that some customers who participate in a program, i.e. receive incentives for participation, would have installed the measures for which they received the incentives even in the absence of the program. These customers are known as "free riders" and the savings that result from their actions must be subtracted from gross savings. The second effect is known as the "spillover effect" and reflects the fact that some customers who install measures are influenced by the program but do not actually take advantage of program incentives. The savings associated with spillover should be added to gross savings. Our analysis of program cost-effectiveness is based on net program savings estimated using NTGR included in the CPUC Energy Efficiency Policy Manual and DEER. These ratios are based on over a decade of evaluated program impacts and are the most consistent set of such data available.

Once program data were compiled, each program was screened for cost-effectiveness using the Total resource Cost test. Note that the version of the test used did not include the benefits associated with any gas savings resulting form implementation of certain measures that affect both electricity and natural gas consumption. However, the incremental measure cost of such measures was pro rated such that only the share of the measure cost associated with electric savings was counted.

Two portfolios were then constructed to represent different levels of program intervention:

1. The Moderate Portfolio was constructed to achieve a minimum budget of $13 million in 2008 and $20 million in 2010. The incentives were set to achieve a 2 year payback for residential and non-residential customers. Once the minimum budget target of $20 million was achieved in 2010, participation growth was held constant at 1% starting in 2011.

2. The Aggressive Portfolio was constructed to offset at least 25% of load and demand growth by 2016, and achieve a minimum reduction of 229 MW by 2012 and 540 MW by 2025. The incentives were set to achieve a 1 year payback for residential customers and 1.5 years for non-residential customers. Once the minimum reduction target of 229 MW was achieved in 2012, participation growth was held constant at 2.3% starting in 2013.

The costs associated with overall portfolio administration and the operation of programs that are not directly associated with energy savings and program evaluation were then added to program costs, and the entire portfolios were then screened for cost-effectiveness.

Finally, we performed a formal uncertainty analysis of the portfolio using a Monte Carlo procedure that estimated uncertainty associated with portfolio savings as a function of uncertainty in estimated measure savings, costs, and NTGR.

The Collaborative Process

One important objective guiding the development of this Plan was to involve stakeholders early in the process and to brief them throughout with respect to the results of the analysis and proposed portfolio. The following workshops were held:

- January 9th, 2007: Provide overview of the proposed DSM planning process outlined in the ICF proposal.
- February 6th, 2007: Review parties' comments, discuss proposed process and potential waiver requests.
- February 28th, 2007: Finalize waiver requests.
- April 12th, 2007: Discuss measure analysis.
- July 30th, 2007: Review and discuss cost-effective programs and portfolios.
- September 9th, 2007: Further review of DSM programs.
- October 5th, 2007: Discuss electric and gas cost sharing and define portfolio that exceeds Missouri goals.
- October 15th, 2007: Decide to pursue portfolios that are higher than Missouri goals.

Most important, based on suggestions from several stakeholders, the Company has positioned its programs as broad solutions-based offerings rather than a number of discrete programs. We agree with the stakeholders that it is important to design programs from the perspective of the customer and minimize the confusion that can be created by having too many discrete programs. The Company's proposed approach is to offer two basic programs – Residential Solutions and Business Solutions. Within each, customers will have a variety of energy management solution opportunities to choose from. Our objective is to design these programs around several portals such as online energy audits, a program website, a single customer contact "800" number (one for residential and one for business) and a building energy benchmarking service.

For purposes of program analysis, it was necessary to break these programs into their constituent elements such as a residential lighting program or a commercial and industrial prescriptive incentive program. However, it is the Company's intent to take the broad solutions to market. Within these broad programs, it is essential to maintain the flexibility to reallocate funds based on market response. Nevertheless, the Company intends to aggressively market the solutions elements, such as new construction and retro-commissioning that promote comprehensive energy management approaches and the capture of lost opportunities.

The Company is committed to continued engagement with our stakeholders to provide not only opportunities to review our progress, but also to contribute to the continued development and strengthening of the portfolio.

2.2. Overview of the Remainder of the Plan

The remainder of this Plan describes the process used by the Company to identify the programs we propose, to provide program design templates for each of those programs, and to outline our proposed approach to managing the acquisition process.

- Section 3 describes the portfolio philosophy underlying the Plan, including a description of key policy and corporate objectives to be served.
- Section 4 includes descriptions of each of the programs the Company proposes to include in its portfolio. These descriptions contain overviews of proposed implementation, marketing and incentive strategies, estimated savings and proposed general budgets. Budgets and savings targets should be recognized as preliminary at this stage. Both will be refined as the program design process is completed and third party implementation contractors are hired.
- Section 5 addresses the Company's proposed approach to evaluation, measurement and verification, including both internal QA/QC and verification as well as our proposed approaches to evaluating program savings.
- Section 6 includes an implementation roadmap, focusing on the series of steps the Company plans to take to finalize program and portfolio design and move programs into the market.
- Section 7 describes the Company's proposed approach to program management.

Soliciting Program Ideas

Consistent with commitments made in the Stipulation and Agreement emerging from its prior IRP filing, the Company conducted a broad solicitation of innovative program proposals from providers of energy efficiency and demand response providers. The RFP was issued in early May to a list of potential bidders prepared by ICF International. In addition, the notice of solicitation was advertised in the Association of Energy Service Professionals newsletter.

Twenty-two proposals were received, five of which were for demand response programs and the remainder for energy efficiency programs. The proposals were reviewed for completeness and to determine if, as requested, the proposals offered innovative approaches to filling gaps in the initial Ameren portfolio.

Five proposed energy efficiency programs and no demand response programs were initially identified as complete and offering potentially innovative approaches. Ultimately, however, all of the proposed programs overlapped to some extent with the generic programs already developed for the portfolio, and the Company elected not to include any of those programs in its DSM portfolio.

- Appendices to the plan contain a more detailed description of the analysis process and supporting data.

3. Demand Side Management Portfolio Framework

3.1. Introduction

The essence of a portfolio is balance—a mix of investments corresponding to different objectives and with different risk profiles that help ensure goals are met even if individual investments under-perform. The set of demand-side programs that AmerenUE proposes should be viewed in similar terms. The mix of programs is structured to satisfy a variety of public policy and Company objectives, while ensuring that even if some programs under-perform, the portfolio as a whole will fulfill its role in the Company's overall resource strategy.

This section describes the demand side program investment philosophy that has guided selection of the programs proposed. The design of the portfolio framework includes two basic steps: the definition of DSM investment objectives and establishment of a perspective on program and portfolio risk. Investment objectives are set to reflect both policy and regulatory standards, as well as program performance and customer service criteria.

3.2. Setting the Investment Objectives

In the following brief sections, we outline what we consider to be key portfolio design objectives. Invariably, the extent to which some important objectives are satisfied cannot be expressed quantitatively. In addition, we should expect that it will not be possible to simultaneously maximize/satisfy all objectives.

3.2.1. Regulatory and Policy Objectives

The Commission's IRP rule, combined with the recent history of Company energy efficiency investment and the recent Stipulation and Agreement, yields an important set of policy and regulatory objectives. These include:

- Developing a DSM portfolio that contributes to the satisfaction of the primary planning criterion of minimizing the present worth of long-run utility costs
- Developing a set of potential DSM programs that are designed to deliver an appropriate selection of end-use measures to each market segment.
- Include all programs passing the total resource cost test in at least one portfolio that ultimately is considered in at least one alternative resource plan. The Joint Stipulation and Agreement includes a presumption of "more than four energy efficiency and five demand-response programs" without which AmerenUE is expected to document why so few programs are cost-effective. Section 4 of this plan describes the programs that we selected for inclusion in the portfolio.

Defining Cost-Effectiveness

An overarching objective of portfolio design is cost-effectiveness. Under the Missouri IRP rule, DSM measures are to be screened using the probable environmental benefits test and, for those measures passing this test, the utility benefits test as well. Programs are to be screened using the total resource and utility benefits tests. Although the rule focuses its cost-effectiveness provisions on measures and programs, we propose to focus ultimately on the portfolio. This will enable us to include measures and programs that, while perhaps not cost-effective by themselves, are important elements of the portfolio to help us serve hard-to-reach customers or promote market adoption of leading edge technologies. Nevertheless, this objective requires a serious effort to maximize cost-effectiveness in program designs subject to the need to design programs that will succeed in the market.

3.3. Portfolio Design Objectives

Within the broad parameters of these policy and regulatory objectives, we propose to define a number of additional objectives to guide the development of the DSM portfolio.

Include All Programs that Screen as Cost-Effective

While some portfolio planning processes are driven by an overarching objective to achieve a certain level of energy/demand savings, the Missouri IRP rule defines a slightly different approach. The objective in this case is to include in one or more DSM portfolios, all measures and programs that screen as cost-effective.

This objective also implies that all portfolios that are considered to be cost-effective as measured by the TRC and utility benefits tests. However, this should not imply the threshold condition that all programs included in the portfolio be cost-effective. The objectives outlined below will, in some cases, suggest programs that either are not cost-effective or are not easily subjected to cost-effectiveness analysis (e.g. information and education programs).

Provide Coverage of Hard-to-Reach Sectors

Energy efficiency programs that are intended principally to serve as a resource typically target the most accessible and cost-effective pockets of efficiency potential. Although these programs might be designed to allow all customers to participate, certain market segments invariably are “hard to reach”. Low income customers, renters, small businesses and not-for-profit organizations often face barriers to participation in efficiency programs that are more severe or complex than those addressed by mainstream efficiency programs. One explicit objective of this plan is to ensure availability of program services for low income residential customers, multi-family properties, and small businesses.

Inclusion of Some Educational/Informational Elements to Promote Changes in Long-term Customer Behavior

A prudent investment strategy should lay the foundation for investment in sustainable energy efficiency even after direct ratepayer funded investment ends. We believe such activities can have significant value in several areas:

- Strengthening the capacity of downstream efficiency product and service suppliers to successfully sell energy efficiency;
- Moving target customer segments from awareness to action by providing focused information, technical assistance and training; and

Where appropriate, market preparation elements should be built into each program design.

Promotion of Emerging Technologies and Innovative Concepts

Resource acquisition strategies typically focus on promotion of commercialized energy efficient technologies and proven practices. However, a robust portfolio, particularly one designed to support program activity over a number of years, should include some level of investment in technologies, practices and program delivery methods that could emerge as important contributors to acquisition targets and market development in out-years of the portfolio. These investments could be configured as pilot programs or market research projects. While this plan does not have Research and Development (R&D) explicitly proposed, we expect to work with stakeholders during the implementation planning period to address R&D pilot projects.

Strengthen Customer Service

Implementation of DSM programs provides an important opportunity to re-establish and strengthen relationships with consumers and energy efficiency product and service suppliers. Programs includes in the portfolio should be designed to support customer service and satisfaction objectives.

Balance Energy Efficiency and Demand Response Elements

Parties agree that a robust portfolio should include both energy efficiency and demand management/demand response elements. More important, however, these elements should, to the extent possible, be conceptually/programmatically integrated to extract maximum value from the demand-side resource. The Joint Stipulation and Agreement creates a rebuttable presumption that such a portfolio would include at least four energy efficiency programs and five demand-response programs.

Minimize Rate Impacts

Although cost-effectiveness as measured from a total resource cost and utility benefit perspective drives portfolio construction, individual program design elements should reflect an attempt to mitigate rate impacts where possible. For example, programs should be designed to minimize free-ridership.

Ensure Portfolio Flexibility

This objective includes several important elements:

- Programs should be scalable; those programs that either require heavy initial investment or cannot be easily ramped up or down introduce excessive risk, particularly in a new portfolio.
- Program designs should be flexible to enable rapid changes if market conditions warrant.

- The Company should retain the flexibility to manage investment in individual programs such that investment can be shifted away from under-performing programs to stronger performers.
- The portfolio should be balanced across sectors and specific markets to spread participation risk and reduce cost.

Employ Best Practice Portfolio and Program Design

"Best Practice" often is an imprecise characterization of a complex mix of experience, practice, and environment that together yield outcomes widely recognized as superior. This is particularly the case for energy efficiency programs given that they serve a wide variety of objectives, market segments, and administrative models. For example, programs intended principally to effect a market transformation typically have very different designs, embody more program elements, require greater investment per unit of energy saved and are more difficult to evaluate, particularly over short periods than resource acquisition programs.

Experience shows that the recipe for program success is one part good design and two parts good execution. Neither of these ingredients is entirely portable—a best practice program or program process inevitably contains locational or sponsor idiosyncrasies that have contributed to its success. One characteristic common to many programs labeled as best practice is that they have been sponsored by entities with years or decades of program experience. What appears today as best practice is often the product of an evolution in program planning, implementation and evaluation within experienced organizations. While a new entrant into the energy efficiency marketplace will certainly be able to extract value from this experience, it will be the ability of the entrant to effectively execute under its unique circumstances that will determine program success.

This point leads to a final general observation; what is best practice for a utility that has been designing and managing programs for two decades will be different in some cases from what should be viewed as best for a utility such as AmerenUE that is just entering the field. The energy efficiency portfolios managed by utilities with long experience tend to be characterized by narrower market segmentation, more complex delivery structures, and a larger number of programs.

3.4. Applying the Framework

Table 6 distills the AmerenUE portfolio objectives, and illustrates how those objectives translate into specific design parameters and program elements. The first column recaps the portfolio objectives described above. The second column describes how those objectives could influence the general structure of the portfolio, and the third column suggests how these portfolio design parameters could shape specific program elements.

Table 6.
Portfolio Objectives, Design Parameters, and Design Elements

Objective	Portfolio Design Parameters	Program Design Elements
Include all programs that screen as cost-effective	• The relative allocation of resources across programs should be based on efficiency potential and cost-efficiency (e.g. $/kWh or kW).	Maximizing measure representation and program cost-effectiveness argues for broad programs (broad applicability to market segments) with straightforward structure
Coverage of hard-to-reach sectors	• Portfolio should include, at a minimum, elements aimed at serving low income residential customers. • Other hard-to-reach sectors including small commercial.	• Include at least one low income residential program
Inclusion of some educational/informational elements	• Market preparation activities should be used where they (1) can help boost acquisition program effectiveness (2) are an essential element of an acquisition program and/or (3) help ensure sustainable market activity.	• All program designs should address the need for specific market preparation activities (e.g. trade ally training programs, awareness-building, etc).
Promotion of emerging technologies and innovative program concepts	• The portfolio should earmark resources for a "Research and Development" element supporting technology research and demonstrations and pilot programs.	• Focus on segments/measures in which significant technology change is likely and/or where current measures are on the cusp of cost-effectiveness.
Strengthen customer service	• Program designs should incorporate customer input, include branding, and link delivery to customer service functions.	• Employ customer focus groups during final program design phase. • Ensure program designs incorporate links to the Company's customer service functions.
Balance energy efficiency and demand response	• Default is at least four energy efficiency and five demand response programs	• Pursuit of this objective should be tempered by program design considerations focused on broad reach and delivery efficiency.
Minimize rate impacts	• Seek a balance between energy savings and demand reduction to capture savings when most valuable. • Evaluate multiple portfolios to assess cost-effectiveness/rate impact trade-offs	• Favor designs that minimize free riders • Favor designs that capture peak savings
Ensure portfolio flexibility	• Seek diversity across technologies and markets • Balance the need for broad coverage and minimizing administrative complexity through too many programs	• Focus on broad designs that incorporate a wide range of measures and market segments.
Apply Best Practice Design Principles	• Portfolio needs to be manageable given AmerenUE experience • Minimize the number of programs and avoid programs initially that require complex administrative structures	• Focus on straightforward designs characteristic of "starter portfolios"

Guided by these objectives, the Company explored a variety of DSM portfolios during the IRP planning process. The stakeholder process that the Company created to support development of this plan produced general agreement on the energy and demand reduction targets to be pursued through an Aggressive Portfolio of programs. These goals are:

- Aggressive targets that are higher than the targets established in the 2006 rate case,
- Designed to ramp quickly during the first five years of the planning period and then reduce towards the end of the 20 year planning period, based on EPRI PRISM analysis.
- Designed to generate over 123,000 MWh of savings in 2008, 269,000 MWh of savings in 2009 and 429,000 MWh of savings in 2010,
- Designed to decrease peak demand by 106 MW in 2008, 131 MW in 2009 and 161 MW in 2010.

3.5. Managing Program and Portfolio Risk

Portfolio risk is defined as the likelihood that the portfolio will fail to deliver on its objectives, focusing principally on cost and performance. The way in which risk is managed depends on

three factors: (1) Parties' risk tolerance; (2) The relative riskiness of the programs included in the portfolio; and (3) The portfolio design elements used to mitigate and balance individual program risk.

- **Risk Tolerance.** The tolerance for the risk of not achieving a significant portion of the DSM potential incorporated in the Company's Aggressive Portfolio is low. This translates into a preference for a core of programs with relatively standard and straightforward program designs, high historic net-to-gross ratios and a track record of successful implementation in other jurisdictions.
- **Program Risks.** Close to 20 years of experience with energy conservation program design and implementation yields valuable information about the relative success of different types of programs. This experience shows that certain types of program delivery, with certain types and levels of incentives have relatively less variability in performance. At the same time, these program types cannot easily be applied in all market segments.
- **Risk Mitigation.** The same experience that illustrates the relative riskiness of program types also suggests a range of methods for mitigating and managing these risks. For example, program implementers increasingly are being asked to assume a larger share of performance risk by tying payment to delivered savings. In other cases, where risks are closely associated with being able to influence a mass market, risk can be mitigated to some extent by moving the program focus upstream to retailers, distributors or manufacturers where greater control over performance can be exercised.

Four types of risk that must be accounted for:

- **Performance risk.** The risk that, due to design or implementation flaws, the program does not deliver expected savings. This risk is common to all program types.
- **Technology risk.** The risk that technologies targeted by a program fail to deliver the savings expected. This risk is concentrated in programs that target emerging technologies; systems that are aggregates of specific technologies, and/or systems in which energy use is strongly influenced by external factors (e.g. customer behavior, economic conditions, etc).
- **Market risk.** The risk that, either because of a poor economic climate or the availability of better investments, customers choose not to participate in a program.
- **Evaluation risk.** The risk that independent EM&V will, based on different assumptions, conclude that savings fall short of what the implementers have estimated.

Typically, the first three types of risk are dealt with, first, through program design intended to minimize risk within a program and, second, by ensuring that the portfolio contains a mix of program types (different services, delivery mechanisms, providers, incentive types and levels, etc.) sufficient to avoid over-reliance on any one approach, technology or market.

Evaluation risk is addressed by commencing evaluation activities at the same time as programs are designed. Thus, evaluation protocols are understood by all parties at the outset, and the evaluation process is continuous as opposed to ex-post, allowing program implementers to adjust design and delivery to real-time information from the evaluators. This approach views evaluation not only as an independent verification of performance for regulatory purposes, but also as a vital input to a continuous process of program improvement.

3.5.1. Managing Risk over Time

Risk is also influenced by time. In the case of market risk, for example, risk increases as the implementation horizon expands, the longer the horizon, the more the economy and markets can change from what is assumed during the initial program design stage. This is a particular concern in this DSM analysis process given the need to assess DSM performance within the overall resource portfolio over an extended period of time. Technology risk tends to decline over time as performance characteristics become better understood, but at the same time, the risk that technologies embedded in programs become obsolete increases. For example, three years ago residential central HVAC rebate programs were popular given the substantial cost-effective savings that could be achieved between the market baseline equipment and SEER 13 units. Now that the federal standard has risen to SEER 13, efficient central AC programs are rarely cost-effective. Finally, programs will gain market traction at different rates; some are capable of acquiring savings relatively quickly, while others require more market development. Program management efficiency is optimized when programs create a relatively smooth profile of savings over time. Therefore, it is important to balance the risks inherent in late-developing programs with programs that can deliver quick and sustainable efficiency gains.

Each of these phenomena argue for a portfolio that is both balanced with respect to time and dynamic in the sense that it can be easily modified if experience and market conditions suggest new opportunities or existing designs are not effective. The portfolio that we propose in this Plan should be viewed as the Company's initial best effort at designing a set of programs that will satisfy the objectives outlined above. Early success reduces the risk that the target load reduction will not be met and increases program design and management flexibility. The portfolio also includes a variety of resource acquisition and market preparation programs that have slower development rates. Although these programs might carry relatively greater risk, they also embody substantial value with respect to the objectives outlined above. The risks themselves can be hedged by fast-start programs and by the ability to rebalance the portfolio over time based on feedback from program evaluation.

4. The AmerenUE Portfolio

This section introduces the programs that the Company proposes to include in its initial demand side management portfolio, and describes the design philosophy and process that were used to select them. This portfolio should be viewed as the Company's starting point, with an expectation that it will evolve based on more detailed implementation planning and program experience.

The Company is committed to achieving its portfolio objectives at the lowest reasonable cost, which requires an extremely efficient design, implementation and administration process. Toward this end, the Company applied several specific design guidelines, all of which derive from our focus on this commitment. These guidelines include:

- The bundling of program offerings to reduce the costs of program administration and the market confusion that can arise from too many program requirements. Although the Company has evaluated and selected 16 "program elements" our intent is to bundle these elements into broad offerings that enhance both market acceptance and program delivery efficiency. These bundles are described below.
- Minimizing program design complexity in the interests of speeding time-to-market, reducing administrative costs, and encouraging participation.
- Retaining design flexibility to enable (a) program implementers to adjust specific designs as dictated by customer response, and (b) the Company to rebalance the portfolio based on individual program performance and emerging opportunities.
- Maximizing the energy and demand reduction resource acquisition elements of the Plan. Although the proposed plan incorporates a number of what are often termed "market preparation" activities (information, education and training) the focus of the plan is on achieving measurable energy and demand savings. At the same time, the Company sees the ultimate objective of its investment in DSM as being a gradual transformation of the market, such that consumers incorporate energy efficiency as an important criterion in purchasing and use behavior. Although a number of the Company's proposed program designs incorporate market preparation activities, the aggressive ramp-up schedule and the relatively tight budget places a premium on programs designed to deliver energy efficiency resources. We have included several market preparation activities that we believe provide essential support to the proposed acquisition efforts, and that position the portfolio for future years.

4.1. Initial Program Set

Using the measure and program screening process outlined in Section 2, the Company screened the following program elements:

Table 7: Initial Program Concepts

Residential Energy Efficiency Solutions	
Home Energy Performance	Whole house combined direct install and rebate program for electric measures.
Residential Lighting & Appliances	A mid-stream CFL and ENERGY STAR appliance incentive program.

Residential Multi-family	Comprehensive program incorporating low-cost/no-cost measures and major system upgrades where cost-effective.
Residential Low Income	Comprehensive whole-house program linked to existing weatherization programs.
ENERGY STAR Homes Program	Incentives to builders for construction of ENERGY STAR new homes – focus on builder marketing support.
Residential HVAC Diagnostics & Tune-Up	Provide incentives through HVAC dealers to properly charge refrigerant and set proper air flow for existing central air conditioning units.
Residential New HVAC	Incentives for installation of new central air conditioners exceeding federal standards, as well as for proper installation of the units.
Business Energy Efficiency Solutions	
C&I Prescriptive Incentives	Pre-set per measure rebates for a wide variety of standard measures such as lighting, motors, packaged AC, commercial food service equipment, etc.
C&I Retro-commissioning	Incentives for building energy surveys and energy use reductions per square foot.
C&I Custom Incentives	Rebates for essentially any non-prescriptive measure for which project analysis (could be cost-shared) shows the project to be cost-effective. Incentives typically set to achieve two-year payback subject to a cap.
Commercial New Construction	Design and construction/measure incentives for construction or major rehab of buildings to 10-20% above current ASHRAE code or current practice, whichever is higher.
Residential and Business Demand-response Solutions	
Residential Direct Load Control	Installation of switches for direct control of residential central air conditioners.
Residential Critical Peak Pricing w/Smart Thermostat	Residential customers sign up for a CPP tariff which includes free install of Smart Thermostat technology, with low rates at off-peak times, and higher rates at peak times, to encourage usage reduction.
Small Commercial Critical Peak Pricing w/Smart Thermostat	Small business customers sign up for a CPP tariff which includes free install of Smart Thermostat technology, with low rates at off-peak times, and higher rates at peak times, to encourage usage reduction.
Commercial Demand Credit Program	Customers receive an incentive for economic and reliability curtailments called by the Company.
Industrial Interruptible Tariff	Customers sign up for an Interruptible tariff, with lower rates for energy and demand, in exchange for interrupted service during system peak times.

Consistent with the Stipulation and agreement, the Company found more than four energy efficiency programs to be cost-effective and have included all such programs in its portfolio. The Stipulation and Agreement also required the Company to include at least five cost-effective demand response programs in its portfolio or explain why at least five programs would not be cost-effective. Unlike in the case of energy efficiency programs that can target a variety of end uses, demand response program options are more limited. Multiple demand response programs within a customer class will cannibalize each other to some extent, since within any class, the programs typically target demand as opposed to specific end uses. In addition, having a large number of demand response options within a customer class likely leads to customer confusion and could reduce overall demand response. Therefore, the program screening process focused on the major types of demand response options:

- Residential direct load control
- Critical peak pricing (CPP) program for residential and small commercial customers

- Critical peak pricing (CPP) program for residential and small commercial customers with a smart thermostat
- Commercial demand credit
- Industrial interruptible tariff.

Based on past experience, as well as that of other utilities that had tested both options, the Company elected to move forward with the CPP program including a smart thermostat. This option is cost-effective for both residential and small commercial customers, and will be offered as two programs – one within the Residential Energy Solution program and one within the Commercial Energy Solutions program.

The Company is committed to the continued enhancement of program offerings and intends to investigate and incorporate emerging technologies into future programs. As operational experience is gained and greater understanding of the baseline characteristics of our service territory are ascertained, AmerenUE will work with stakeholders to determine the best manner in which to offer the emerging technologies to the AmerenUE customer base.

Subsequent to the initial program design and screening, stakeholders agreed that natural gas savings should not be counted in the valuation of benefits under the Total Resource Cost test as applied in this process. The screening process was modified to exclude gas savings from the TRC calculation, but also to pro rate the costs of measures yielding both electricity and gas savings to represent only the share of costs attributable to the electric measures. Should the Commission decide that gas and electric energy efficiency measures be screened together, the Company is committed to working with Laclede Gas to develop joint natural gas/electric energy efficiency programs that address opportunities to improve the heat loss/gain characteristics of buildings.

Although a large number of other designs could be considered (for example some utilities design programs targeted at specific commercial sectors such as health care or commercial real estate), the Company believes that its initial portfolio should minimize the complexity associated with narrow market segmentation.[1] The programs that remain in the Company's proposed portfolio incorporate all measures screening as cost-effective and can easily incorporate additional measures should others be found cost-effective. As the Company gains experience with program implementation and gathers additional market intelligence, additional program designs will be considered.

AmerenUE will pursue partnerships on a statewide basis to implement customer education programs that bolster consumer knowledge of the benefits associated with the implementation of energy efficient technologies and lifestyles. The Company plans to leverage relationships with industry partners and leading consulting firms to further define DSM educational best practices.

In addition to the load reduction programs described above, the Company believes that an effective portfolio must include some market conditioning programs. Such programs typically

[1] As noted in Section 2, the Company received several proposals that were considered innovative in the sense that they would target specific market niches not directly targeted by the Company's proposed programs. However, this more narrow targeting would add complexity to the portfolio as well as overall management costs. Ultimately these ideas might prove valuable to pursue. However, the Company believes it is important to focus initially on more simple, standardized program approaches.

cannot be associated with direct energy savings but nevertheless help build the foundation for energy saving programs through education, training, technical assistance and awareness-building. Specifically, the Company proposes to enhance its web-based residential energy information and audit tool that can serve as a portal for customers to learn about and participate in the Company's residential programs. The Company also proposes to develop a suite of knowledge- and capacity-building programs to facilitate market transformation. Education, training and awareness-building are essential elements of the portfolio, without which the investment yields little/no permanent change. Thus the Company will both design and implement a cross-cutting education and training programs. Initially, the Company will introduce the web-based on-line energy auditing tool that ultimately will serve as a portal to the Company's residential program elements. The Company will also incorporate program element-specific education, training and awareness building activities into each program as appropriate. While spending in these may not yield measurable near-term efficiency gains, they will be critical to long term program success.

4.2. Proposed Programs

4.2.1. Portfolio Summary

The following several table summarizes the proposed portfolio of AmerenUE programs for the initial three-year implementation period. ***AmerenUE intends to rapidly ramp up its DSM program efforts. In order to prudently invest in DSM programs, it is necessary to build the internal infrastructure and systems discussed in this document. AmerenUE intends to spend at least $13 million in 2008 and target a ramp up to the $24.5 million in 2009.***

Table 8: AmerenUE Portfolio Summary

Program	Total Annual MWh			Total Annual MW			Annual Program Costs			Cost-effectiveness	
	2008	2009	2010	2008	2009	2010	2008	2009	2010	TRC	UCT
ENERGY STAR Homes Program	0	0	154	0.0	0.0	0.1	$0.0	$0.1	$0.2	1.00	1.18
Home Energy Performance	3,480	8,195	14,463	0.5	1.2	2.0	$0.8	$1.1	$1.4	2.39	3.19
Residential DR - CPP w/ Smart Thermostat	0	0	159	0.0	0.0	1.8	$0.0	$0.0	$0.5	1.37	1.30
Residential DR - Direct Load Control	495	1,013	1,554	5.5	11.3	17.3	$1.1	$1.3	$1.5	1.93	1.78
Residential HVAC Diagnostics & Tune-Up	0	5,904	13,692	0.0	1.2	2.8	$0.0	$2.1	$2.8	1.55	1.92
Residential Lighting & Appliances	28,749	65,928	112,670	2.4	5.6	9.6	$3.1	$4.1	$5.3	2.29	3.99
Residential Low Income *	4,581	9,162	13,742	0.3	0.5	0.8	$3.0	$3.0	$3.1	0.88	1.00
Residential Multifamily	10,012	24,136	34,026	1.8	4.3	6.2	$0.7	$1.0	$1.4	2.63	3.26
Residential New HVAC	0	1,464	3,394	0.0	0.3	0.7	$0.0	$0.5	$0.7	1.71	2.13
C&I Custom	27,099	54,198	81,297	3.5	7.0	10.6	$4.2	$4.3	$4.4	2.23	2.94
C&I Prescriptive	32,470	68,985	109,738	4.8	10.5	16.6	$4.9	$6.5	$8.3	1.89	2.44
C&I Retro-commissioning	11,573	24,007	37,357	1.4	2.8	4.4	$0.6	$0.6	$0.7	3.17	6.78
Commercial Demand Credit	760	760	760	38.0	38.0	38.0	$0.4	$0.4	$0.4	1.56	1.08
Commercial DR - CPP w/ Smart Thermostat	0	0	178	0.0	0.0	2.0	$0.0	$0.0	$0.5	1.60	1.51
Commercial New Construction	817	1,634	2,451	0.3	0.5	0.8	$0.7	$0.7	$0.7	1.14	1.35
Industrial Interruptible Tariff	3,800	3,800	3,800	47.5	47.5	47.5	$2.0	$2.0	$2.1	1.59	0.36
Education Program	0	0	0	0.0	0.0	0.0	$0.5	$0.7	$0.9		
Evaluation, Measurement, and Verification	0	0	0	0.0	0.0	0.0	$1.1	$1.4	$1.7		
Information Program	0	0	0	0.0	0.0	0.0	$0.5	$0.7	$0.9		
Portfolio Administration	0	0	0	0.0	0.0	0.0	$1.1	$1.4	$1.7		
Total Portfolio	123,835	269,185	429,434	105.9	130.7	161.1	$24.5	$31.9	$39.1	1.71	2.04

* AmerenUE has increased the budget for the Residential Low Income Program from $1.2 Million to $3.0 Million to further our commitment to this segment of our customer base.

Consistent with best practice program design principles, the Company has designed two broad solutions-based programs, each of which will have multiple program elements. The objective is to offer customers a broad suite of options to meet their energy management needs, rather than forcing customers to sort through a variety of individual programs. Grouping program elements under these solutions-based umbrellas also enables the Company to design sector-based branding, marketing and awareness building initiatives that encourage customers to take action to manage their energy service needs rather than trying to promote participation in a variety of individual programs.

4.2.2. Residential Energy Solutions

The Residential Energy Solutions program offers a wide range of options for residential customer energy management. The program will allow a comprehensive set of home solutions, while providing multiple points of entry to the services offered by the Company. This program will be intertwined with the Company's education and outreach efforts, and specifically with the roll-out of a web-based audit tool, such that the program not only offers immediate savings in this first program cycle, but also lays the foundation for a more energy-aware customer base. The program will adapt over time from an initial focus on individual technology-based solutions to a more comprehensive focus on whole-home solutions that can offer customers the greatest long-term value. In addition, this solutions package will integrate demand response program elements to enable the Company to cross-sell efficiency and demand response options. The demand-response measures will be designed to piggyback on other program elements, for instance by using the HVAC and home performance programs as an opportunity to offer free or reduced-cost installation of the load control switches necessary for participation in the utilities' demand-response offerings.

In early years the program will target primarily the most cost-effective measures and low income homes. As program participation grows, the Company will expand its reach across the residential market for both deeper efficiency gains and penetration into a higher percentage of homes. Coupled with the outreach and education efforts, the program is intended to eventually position the Company as customers' *partner* in home energy efficiency improvement.

PROGRAM	ENERGY STAR Homes Program
Objective	To increase consumer awareness of and demand for ENERGY STAR homes while increasing the building industry's willingness and ability to construct ENERGY STAR homes. To achieve energy savings through sales of ENERGY STAR homes.
Target Market	New homes market, with initial focus on mid-market homes.
Program Duration	Initial program implementation period: 2009-2010. Given that the objective of the program is to effect a transformation in the new homes market, the program should have limited duration. Although one could argue that efforts should continue to promote improved new home performance beyond ENERGY STAR, we assume that the program will continue for only two program cycles (6 years).
Program Description	The program would target builders with a package of training, technical and marketing assistance and incentives for construction of ENERGY STAR homes (homes with a HERS score of 86 or higher). The Program would also provide supplemental incentives for savings measures not otherwise included in the builders' design or construction process (e.g. the ENERGY STAR Advanced Lighting Package, and duct sealing). To the extent that gas utilities offer similar programs in the service territory, close coordination/harmonization of program design and delivery is critical to avoid market confusion.

Implementation Strategy	Several program designs have been implemented in ENERGY STAR Homes programs across the country. Early programs provided significant incentives to builders to defray the incremental costs of reaching ENERGY STAR levels. More successful programs have focused on providing marketing support and incentives that cover the cost of the HERS ratings required to establish that the home meets ENERGY STAR standards. Most ENERGY STAR Homes programs are implemented by contractors under the administration of the utility. The Company should offer potential implementers the option to propose alternative program structures subject to savings targets set by the Company. The following design and implementation elements those employed by the most successful programs: o Build the HERS provider infrastructure. The key to all successful ENERGY STAR Homes programs is an active HERS rating provider community. RESNET (the organization that certifies HERS raters) lists more than a dozen certified raters in Missouri, suggesting that there is at least a core of the required infrastructure already in place. o Recruit builders. This step requires one-on-one meetings with builders to establish the Program's value-proposition. That proposition in many markets has been that by building to ENERGY STAR levels builders can create market differentiation. Using large incentives as the value proposition can be inconsistent with a goal of transforming builder practices. Over a dozen builders in the St. Louis area are listed as ENERGY STAR builders, although they report relatively few homes having actually been built. Outreach to and engagement of these builders will be essential part of the early recruiting strategy. o Provide builder training on ENERGY STAR requirements, compliance paths, incentive structures and the marketing strategy. o Recruit trade allies. Electrical, and HVAC contractors are key to the success of the program, as their ability to perform greatly influences the success of the program. Electrical contractors may need training in the lighting design using CFL fixtures. HVAC contractors will likely need training in proper sizing, charging and duct sealing. o Establish incentive structure. Several successful program models have been based on using a competitive bid process to award program incentives. The bid involves both a commitment to a number of homes as well as a bid of cooperative advertising dollars. o Establish builder production milestones; reallocate home incentives away from those builders that do not meet production commitments. o Depending on the strength of the local housing market and the extent to which realtors are involved in new home sales, the program also will offer lender, realtor and appraiser training courses.
Exit Strategy	This program is intended as a market transformation program and should have a limited duration. Premature withdrawal from the market (i.e. before ENERGY STAR Homes have achieved a majority market share) will slow the transformation process, and will impact the development of the HERS infrastructure, leading to a "stranded investment" in rating infrastructure. An exit from the market should be gradual and announced at least one building cycle in advance to allow builders to adjust their plans to the extent that these plans are based on the program. Note that program designs focused on providing rating and marketing support will have less adverse effect when they are withdrawn than those providing large construction incentives, as the builders in the former case are making design and build decisions based on the competitive advantage that ENERGY STAR provides rather than on the expectation of incentives.

Marketing Strategy

ENERGY STAR New Homes programs must incorporate two types of marketing strategies; one aimed at reaching and recruiting builders, and a supplemental marketing strategy, ideally designed and implemented jointly with builders, to raise consumer awareness of the advantages of the homes. Builder recruitment typically is one-on-one and through local builders' group meetings. Given that many national builders have adopted ENERGY STAR as their standard in at least some markets, this recruiting process uses the experience of these other offices to recruit offices in the Company's territory. The consumer marketing strategy typically involves a cooperative print, radio and sometimes television campaign to raise awareness of the availability of ENERGY STAR Homes. In addition, some coop funds may be used to support builder-specific advertising. Outreach to lenders, realtors and appraisers will be included in the strategy.

Eligible Measures and Incentive Strategy

Builders could pursue either a prescriptive or builder option package track. Estimated Incentive levels:

Measure	Incentive per Unit
ENERGY STAR Home (New)	$388

Milestones

February 2008 – Issue RFP for implementation services

April 2008 – Execute implementation contract

July 2008 – Complete detailed implementation plan

June - November 2008 – Program soft launch – recruiting/training of contractors; initial marketing

November 2008 – March 2009 – Full program launch Window

August 2010 – Go/no-go decision on post-2010 program implementation..

EM&V Requirements

Savings would be determined based on home energy ratings administered post-construction and prior to payment of any incentive. Given the prevalence of ENERGY STAR homes programs, relatively little ex post savings evaluation is needed beyond verification of ratings based on a statistically valid sample of homes. The process evaluation would focus on the efficacy of the builder recruiting process and the training of builders and raters. In addition, it would address the relative market shares of ENERGY STAR and non-ENERGY STAR homes, particularly within the down market that is expected to exist over the next several years. The evaluation strategy also will focus resources on the market effects and, particularly, on the market share of ENERGY STAR homes as a gauge of market transformation given that this program is slated to run for six years.

Administrative Requirements

Typically, implementation is bid to a third party, with the Company responsible for general management and QA/QC. Program start-up will require up to .5 FTE, and the steady state requirement for a program of this size is .25 - .5 FTE. Fairly active involvement will be required of the Company's marketing/communications group in the design/approval of the marketing strategies.

Estimated Participation

Measure Installations	2008	2009	2010
ENERGY STAR Home (New)	0	0	315

Estimated Budget

Budget Category	2008	2009	2010	Total
Incentive Costs	$0	$80,830	$109,281	$190,111
Administrative Costs	$0	$48,498	$65,569	$114,067
Total	$0	$129,328	$174,850	$304,177

Savings Targets

Savings per Unit:

Measure	Unit	kWh/Unit	kW/Unit
ENERGY STAR Home (New)	Home	744	0.32

Total Savings

Savings	2008	2009	2010	Total
Net-to-Gross Ratio	0.80	0.80	0.80	
MWh Savings	0	0	154	154
MW Savings	0.0	0.0	0.1	0.1

Program Metrics

The primary metrics are the energy and demand savings. Key secondary metrics are the number of homes committed by builders and the number of HERS raters recruited.

Cost-effectiveness

Total Resource Cost Test: 1.00
Utility Cost Test: 1.18
Participant Test: 1.68
Rate Impact Measure Test: 0.74

PROGRAM	Home Energy Performance
Objective	To offer comprehensive retrofit packages for customers considering energy efficiency improvement for existing single family homes.
Target Market	Existing single-family homes with central air conditioning that otherwise are not eligible for participation in the low income Home Performance Program.
Program Duration	The initial program cycle is from 2008 – 2010. This program is assumed to extend throughout the planning period.
Program Description	Home Energy Performance is a home diagnostic and improvement program that, as it establishes itself, can evolve into a more comprehensive ENERGY STAR Home Performance program focused on developing a local home performance industry. This initial implementation phase focuses on resource acquisition. An implementation contractor will be retained to market energy home improvement services, based on provision of a range of specific measure incentives, including a number of direct install measures (e.g. CFLs and faucet aerators.) The contractor will provide an energy audit, and will arrange for installation of insulation measures as warranted by the audit. In addition, as warranted, the contractor will coordinate with the HVAC Diagnostics and Tune-Up program to deliver those program services as warranted. During the initial implementation period, the implementation contractor will work to identify and train local firms that can provide comprehensive diagnostic and improvement services. Close coordination with the Earthways Center's St. Louis Home Performance with ENERGY STAR initiative will be key.

Implementation Strategy	The key to successful implementation is to effectively link this program with the HVAC Diagnostics and Tune-Up program. The two programs initially are treated as separate because the trades involved in delivery of the efficiency measures are different depending on the nature of the measure. A role of the implementation contractor will be to coordinate delivery of the services warranted by the home energy assessment. The key implementation steps include: o Development of final detailed program design, including incentive forms, policies and procedures, training materials, marketing collateral and so forth. o Selection/development of appropriate home energy analysis software. The software must be capable of storing and downloading each analysis to enable tracking and verification. o Contractor recruitment. The implementation contractor will recruit insulation/weatherization contractors as program allies. Subject to attending a brief training session and execution of a participation agreement outlining program terms and conditions, including pricing, the contractors will be included on the list of contractors to be used for customer projects. The contractors will be rotated through the projects to ensure fair access. o Customer recruitment. The first 3-year implementation phase will involve direct marketing to customers using phone, direct mail, print ads, radio spots, bill stuffers, door hangers and the Company's web site. o Home energy survey. The implementation contractor or subcontractors will provide energy assessments for interested customers for a nominal fee (the remainder of the audit cost will be subsidized by the program). During the audit, the contractor will install up to five CFLs in specific areas, faucet aerators and water heater blankets on electric water heaters if none exist. The audit will be designed to estimate potential energy savings due to infiltration and heat loss through walls and attics. In addition, if a central air conditioner is present, the assessment will include identification of the age and size of the unit and the last service date, as well as an assessment of duct leakage and insulation. Ideally the audit software enables an onsite report (likely depends on the availability of utility bills). The report will be presented to the customer with recommendations for upgrades, and information about available rebates. o Upgrades. If the customer elects to proceed with any upgrades, the contractor will arrange for the appropriate contractor to contact the customer for installation and provide instant rebate coupons that can be used at time of installation. If the customer wishes to self-install air sealing and insulation, he/she may submit a mail-in rebate application with proof of purchase. o Incentive fulfillment. The contractor installing the measures or making HVAC improvements will submit the instant rebate coupon from the customer along with a copy of the original invoice to the customer and a customer acceptance signature. Subject to verification, the implementation contractor will pay the incentive to the contractor. o Verification. The first 5-10 projects performed by each contractor will be site-verified, with random verification thereafter.
Exit Strategy	This is a potentially complex program carrying the associated higher performance risk. It also is a program that can take a longer period to ramp-up to steady-state production. The exit strategy should be formed around the metrics outlined below. Withdrawal from the market should not cause major disruption. One ancillary objective of the program is to encourage the development of a home performance contracting industry and early withdrawal of the program could stunt the growth of that industry.
Marketing Strategy	"Call to action" marketing campaign using radio, newspaper, direct mail, co-op advertising, public relations, and special events held in conjunction with home improvement retailers. This program would involve some of the most expansive marketing within the portfolio given the need to reach the mass market.

Eligible Measures and Incentive Strategy

Because there are multiple pathways to home energy improvement, the program will need to adopt a multi-faceted incentive structure. These include:

- Direct install (100% incentive to customer) measures including CFLs and aerators
- Customer rebate coupons to use in conjunction with contractor-installed measures
- Mail-in rebates associated with customer self-install air sealing and insulation measures.

The general incentive levels currently envisioned are as follows:

Measure	Incentive per Unit
Ceiling Insulation (R-30)	$161
Ceiling Insulation (R-38)	$213
Faucet Aerators (Existing)	$2
Hot Water Insulation (Existing)	$5
Hot Water Pipe Insulation (Existing)	$92
Infiltration = 0.35 ACH	$211
Low Flow Shower Heads (Existing)	$15
R-11 Wall Insulation	$1,049

Milestones

February 2008 – Issue RFP for implementation services

April 2008 – Execute implementation contract

June 2008 – Complete detailed implementation plan

June 2008 – Program soft launch – recruiting of contractors; initial marketing

September – October 2008 – Full launch Window

August 2010 – Go/no-go decision on post-2010 program implementation.

EM&V Requirements

The evaluation approach will be contingent on the evaluation resources available to the study and the results of an evaluation planning approach that focuses evaluation resources on the programs with the most savings and the highest risk of inaccurate ex ante estimates. This program focuses on installing low-cost no-cost measures and incenting higher cost measures as recommended by an on-site energy audit.

The evaluation effort will employ two separate but coordinated strategies associated with the level of services received. For the low-cost no-cost direct install services that cannot be picked up in a billing analysis, the evaluation will review the program tracking system and the audit reports to identify installed technologies and environmental conditions associated with energy consumption (water temperature, showers or baths per day, energy-related demographic profiles. etc.). Then the study will use participant interviews to confirm the installation and continued use of the installed measures. The interviews will also inquire about the use conditions associated with the energy savings. This will include questions about the hours of use for the installed CFLs, continued use of the aerators and shower heads and the continued use of the other installed measures. The interviews will also include net-to-gross question to allow the estimation of freeriders. The results from the interviews will be used to estimate the savings achieved using home energy modeling approaches linked with and engineering estimation of impacts structured to make use of the interview information.

For the more comprehensive measures and higher impact measures that typically require trade ally support, the evaluation will use base-load and weather sensitive billing analysis approaches to identify savings achieved. The analysis will employ the use of a comparison group consisting of new enrollees into the program for the comparison group pre and post-participation period, with the post-program condition being the period after major measures are installed for all participants. The installation and confirmation of the measures will also be confirmed via interviews with the participants. During these interviews environmental and use conditions will be obtained for use in adjusting the results of the billing analysis.

The interviews with the participants will also include process evaluation questions on the program and the services provided. In addition the process evaluation will interview program mangers and implementation contactors to assess the delivery approach and operations.

Administrative Requirements

As a complex program, this will require a relatively larger administrative commitment from the Company, particularly since this program should be run in close coordination with the HVAC Diagnostics and Tune-Up program. Planning and ramp-up will require .5 - .75 FTE and steady-state program management could require .5 FTE. Although all implementation contracts should include performance provisions, this contract in particular should base payment on the number of customers reached and the level of gross estimated savings to ensure contractor motivation to drive participation numbers which are aggressive. Substantial input from the Company's marketing/communications group will needed for review of and support for the more intensive marketing effort; trade-mark and brand issues will be more important given the expected use of coop advertising.

Estimated Participation

Measure Installations	2008	2009	2010
Ceiling Insulation (R-30)	340	461	613
Ceiling Insulation (R-38)	282	383	508
Faucet Aerators (Existing)	5,944	8,054	10,706
Hot Water Insulation (Existing)	3,884	5,264	6,997
Hot Water Pipe Insulation (Existing)	3,280	4,444	5,907
Infiltration = 0.35 ACH	1,233	1,670	2,220
Low Flow Shower Heads (Existing)	3,500	4,743	6,304
R-11 Wall Insulation	143	194	258

Estimated Budget

Budget Category	2008	2009	2010	Total
Incentive Costs	$476,149	$661,330	$901,057	$2,038,535
Administrative Costs	$285,689	$396,798	$540,634	$1,223,121
Total	$761,838	$1,058,128	$1,441,691	$3,261,657

*Includes contractor training and audit costs.

Savings Targets

Savings	2008	2009	2010	Total
Net-to-Gross Ratio	0.89	0.89	0.89	
MWh Savings	3,480	8,195	14,463	26,137
MW Savings	0.5	1.2	2.0	3.7

Program Metrics

Energy and demand savings goals are the primary metrics. The key secondary metrics are the number of audits performed, the number of rebates paid and the cost per kWh acquired. The number of audits sets the maximum pipeline flow and the number of rebates paid compared to audits determines the close rate which is key in predicting how the program will perform. Once final budgets and targets are set, baseline metrics can be calculated and deviations of more than 20% per quarter or 10% per year indicate that a formal review of program design/implementation is needed.

Cost-effectiveness

Total Resource Cost Test: 2.39
Utility Cost Test: 3.19
Participant Test: 3.16
Rate Impact Measure Test: 1.01

PROGRAM	Residential HVAC Diagnostics & Tune-Up
Objective	Obtain energy and demand savings through improvement of the operating performance of residential central AC units.
Target Market	Residential and small commercial customers with central HVAC units.
Program Duration	Initial implementation period is 2008 – 2010. Initial impacts would not be realized until 2009 given the ramp-up period and the fact that most diagnostic work occurs during the early part of the cooling season. For planning purposes the program is modeled as continuous throughout the 20 year planning period.
Program Description	Some estimates show that as many as 78% of central AC units are improperly charged and up to 70% have improper airflow, both of which can lead to significant performance degradation. In concept the program is simple; HVAC contractors are trained to use one of several tools used to check refrigerant charge and airflow over the system's coils. Based on a quick analysis based on the inputs provided by the technician, the tool provides recommended charge and airflow. The technician then makes the necessary modifications. Typically, incentives are paid to the HVAC contractor per job. The contractor has the option of passing the incentive through to the consumer in the form of a lower fee for the service, or retaining the incentive; the choice depends on the contractor's marketing strategy. The key to the program is HVAC technical training and access to the tools used to diagnose system performance. The tool most cited in the best practice literature is CheckMe! More a process than a specific tool, the CheckMe! approach uses certified technicians to take a series of readings from operating air conditioners. These readings are phoned in to a central office where they are run through a computer analysis, producing a diagnosis as to performance and recommended actions. After the charge and airflow have been corrected, the technician takes another set of readings, calls them in and has the result verified. This process helps ensure not only that the proper diagnosis is performed, but also that the technician correctly sets refrigerant charge and airflow. The CheckMe! Process has been quite successful where applied; between 1998 and 2002 the program produced 46 MW in evaluated peak reduction. Honeywell offers a competing product and service known as HVAC Service Assistant that is designed to diagnose residential and small commercial HVAC performance on-the-spot, with the capability to upload the results to the web. This service is offered through Honeywell and does not provide the same independent check as the CheckMe! Program. KCP&L currently employs CheckMe! As the basis for a similar program.
Eligible Measures	Residential and small commercial refrigerant charge and proper airflow adjustment.
Implementation Strategy	The implementation strategy depends on the specific form of the program. Honeywell delivers a turnkey service. CheckMe! Requires recruiting and training local HVAC contractors in the use of CheckMe!. The former requires less involvement on the part of the Company but also has less of a transformative impact on the local HVAC industry. If the CheckMe! System is used, the Company or its implementation contractor arranges for Proctor Engineering to provide training and certification to local HVAC technicians. The technicians pay a fee to Proctor for participation in the program and for each test submitted. The Company or its contractor would support a marketing and co-op advertising strategy to boost consumer awareness of the program. HVAC contractors would directly market the services. Services would be delivered according to CheckMe! protocols, and the rebates would be paid directly to the HVAC contractor upon satisfactory completion of the process. The alternative would simply have the Company contract with a turnkey provider of HVAC diagnostic and improvement services such as Honeywell. The potential advantage of this strategy is that a single implementation contractor could more efficiently manage both the Home Energy Performance and HVAC Diagnostics and Tune-Up programs. The disadvantage is that the credibility of the Diagnostics program depends on the tests being accurately performed and verified, which will require greater oversight by the Company under the turnkey approach.

<table>
<tr><td>Exit Strategy</td><td>An exit strategy is relatively straightforward should the Company choose to withdraw from the market. Adoption of the CheckMe! approach will require some financial commitment on the part of HVAC technicians and rapid withdrawal of the program could lead to dissatisfaction among those certified by the program. This program is relatively easy to evaluate in close to real-time, and as such the Company can adjust its investment quickly relative to other programs for which evaluation results might be available at best once a year.</td></tr>
<tr><td>Marketing Strategy</td><td>This program is aimed at the mass market and as such will require a higher level of marketing activity to capture consumers' attention and generate sufficient project flow. The strategy will likely have at least two elements, consistent with the approach suggested for the Home Energy Performance program. First, there will need to be a general awareness building and call-to-action element intended to create consumer awareness. This will involve Company sponsored and co-operative print, web and radio advertising, as well as bill stuffers. The second element will involve individual HVAC contractor marketing based on the Program. The campaign most likely will be most effective in the run-up to the heating season, corresponding to the normal air conditioning advertising and sales cycle.</td></tr>
<tr><td>Incentive Strategy</td><td>Incentives will be paid directly to HVAC technicians or, in the case of a turnkey program, to the program implementation contractor.
<table>
<tr><th>Measure</th><th>Incentive per Unit</th></tr>
<tr><td>Central AC (Correct charge, Existing)</td><td>$129</td></tr>
<tr><td>Duct Leakage 5%</td><td>$284</td></tr>
<tr><td>Increase blower speed</td><td>$35</td></tr>
<tr><td>Increase duct sizes or add new ducts</td><td>$571</td></tr>
</table></td></tr>
<tr><td>Milestones</td><td>This program will likely attract the largest participation in the spring, prior to the heating season. Whether the program can be successfully launched in 2008 to capture that season is unclear but unlikely. The following schedule assumes that the program ramps up slowly and is ready for the 2009 season.
February 2008 – Issue RFP for implementation services
April 2008 – Execute implementation contract
July 2008 – Complete detailed implementation plan
July 2008 – Begin contractor training – soft launch – light marketing
October 2008 – January 2009 – Full launch window
August 2010 – Go/no-go decision on post-2010 program implementation.</td></tr>
</table>

EM&V Requirements

The impact evaluation will employ a sampling approach to verify that the correct charges and air-flow rates have been acquired by the treated units. A skilled HVAC tune-up expert independent of the program and significantly independent of competition pressures in that market will be employed to conduct the field efforts. The contractor will review the program participant records pertaining to the pre-tune-up conditions and examine the tuned charge and flow rates achieved to assess and confirm the tuned-up condition. The contactor will also review the deemed savings assumptions to compare with the results of the field data to assess the appropriateness of the savings estimates.

The contractor will record the charge and air flow rates at the time of the inspection and regress these values against the program records for achieved charge and air-flow rates against time, in order to estimate the persistence of the tune-up. In order to add time-variance points to the persistence testing the contactor will conduct multiple examinations on the selected sample over the summer months and again during the spring to plot a tune-up erosion curve to compare with the deemed assumptions and to established the timeline over which savings should be counted. The estimate should include considerations for normal tune-up cycles in the absence of the program based on survey responses.

If additional evaluation funds are available, the evaluation contactor will work with the program implementer to identify a sample of participants and install pre-tune-up kWh/kW/duty-cycle/run-time metering to collect both pre and post-program cooling season data and conduct a weather-normalized analysis of the difference in energy consumption form the unit-specific end-use metered data.

Net to gross assessments will be conducted using a participant survey approach. The participant will be asked about if they were or are still on a HVAC service agreement that would have included having their units tuned-up via that agreement. If they were on a service agreement but have moved off of that agreement, they will be asked about their intent to stay on that agreement in the absence of the program. If they were not on a service agreement, they will be asked about the history of their tune-up practice to see if the program had influenced the level of tune-ups obtained in a way that impacts net savings from the program.

The process evaluation will use interviews with program mangers and service providers to assess the operations of the program. The study will also survey a sample of customers taking part in the program to determine the satisfaction with the program and to inquire about operational conditions impacting satisfaction and enrollment decisions. These issues will also be explored with the trade allies and service providers. The process evaluation will provide recommendations for program changes.

Administrative Requirements

Neither program approach requires an extensive program administrative commitment by the Company; resources are needed mostly for QA/QC (requirements that will be heavier if implementation is performed by a turnkey contractor). Ramp-up and steady-state management requirement will be approximately .25 - .5 FTE will be needed during ramp-up and during program steady-state. Marketing and communications staff will be required for review of the marketing campaign and approval of collateral.

Estimated Participation

Measure Installations	2008	2009	2010
Central AC (Correct charge, Existing)	0	2,629	3,467
Duct Leakage 5%	0	1,968	2,596
Increase blower speed	0	1,888	2,491
Increase duct sizes or add new ducts	0	1,030	1,359

Estimated Budget

Budget Category	2008	2009	2010	Total
Incentive Costs	$0	$1,282,955	$1,734,544	$3,017,499
Administrative Costs	$0	$769,773	$1,040,726	$1,810,499
Total	$0	$2,052,728	$2,775,270	$4,827,998

Savings Targets

Savings per Unit:

Measure	Unit	kWh/Unit	kW/Unit
Central AC (Correct charge, Existing)	Home	928	0.35
Duct Leakage 5%	Home	2,177	0.00
Increase blower speed	Home	772	0.04
Increase duct sizes or add new ducts	Home	1,425	0.34

Total Savings :

Savings	2008	2009	2010	Total
Net-to-Gross Ratio	0.80	0.80	0.80	
MWh Savings	0	5,904	13,692	19,597
MW Savings	0.0	1.2	2.8	4.0

Program Metrics

Primary metrics are energy and demand savings. Secondary metrics include the performance of the contractors (based on CheckMe before-and-after scores), participation per month, kW per home and cost per kW and kWh. Costs will track final estimates fairly closely are they tend to be fixed per home. However, actual savings may vary from initial estimates and should be closely tracked, as this program is responsible for a large share of estimate demand savings.

Cost-effectiveness

Total Resource Cost Test: 1.55
Utility Cost Test: 1.92
Participant Test: 2.63
Rate Impact Measure Test: 0.83

PROGRAM	Residential Lighting & Appliances
Objective	Acquire cost-effective conservation by: • Increasing sales of ENERGY STAR qualified appliances and lighting products to residential customers • Educating consumers (build awareness and branding) through advertising and promotions to purchase ENERGY STAR qualified appliances and lighting products • Expanding the retail penetration of ENERGY STAR qualified appliances and lighting products Coordinate with and leverage current EPA/DOE ENERGY STAR efforts underway to promote qualified appliances and lighting products
Target Market	Residential customers of existing and new homes within the UE electric territory. Secondary target markets are retailers (independent, big box, home improvement/do-it-yourself, grocery stores, hardware, lighting specialty and showrooms). Eligibility will be verified based on zip code of the customer (in the case of direct rebates) or store in the case of retail promotions. Some leakage is inevitable with retail-based programs and typically is ignored. However, given that the Company's major urban market is contiguous to Illinois, leakage will be higher than otherwise would be the case. If leakage is considered a major issue, the program design should favor consumer rebates as opposed to retail (point-of-sale) rebates.
Program Duration	Three year initial program implementation (2008-2010); Post 2010 implementation based on results of initial period. Program is assumed for planning purposes to extent throughout the planning period.
Program Description	Given the initial size of the program, scale is insufficient to generate significant manufacturer or major retailer participation (such as through in store instant rebates or product price buy-downs. The primary delivery strategy will be direct consumer rebates, supported by outreach to retailers (special in-store events, etc). Essential elements of the program will include: • Account management—build relationships with retailers and manufacturers • Field services—provide retailer support for promotions, merchandising, and networking between retailers and manufacturers • Training—educate retail staff on the benefits of ENERGY STAR products • Co-op promotions and advertising –leverage existing funds for advertising and promoting products. Funds will be cost-shared up to a maximum amount. • Consumer incentives—provided to offset the purchase price • Manufacturer incentives—buy-downs to assist manufacturers' retail penetration primarily in the case of CFLs as part of the national Change-a-Light promotion. • In-store promotions—leverage existing retailer promotions • Marketing—develop and provide POP, advertising, in-store educational materials • Retail sales staff incentives to promote and sell ENERGY STAR products (only would apply to larger appliances).

Implementation Strategy	The Company will hire a third party contractor to provide final design and to implement the program. The two pillars of the implementation strategy are (1) Effective outreach and (2) Effective rebate fulfillment. We expect that implementation will include several tracks. These activities will be designed to yield savings that can clearly be attributed to AmerenUE investment. Given the budget and the nature of consumer purchasing behavior (consumers tend to purchase certain appliances during certain times of year) this program will be implemented as a series of time-limited promotions, ideally linked to other regional or national promotions. • Leverage ENERGY STAR and MEEA initiatives—piggyback on activities with manufacturers and retailers participating in MEEA and ENERGY STAR promotions (e.g. Change-a-Light. Cool Your World, Earth Day, etc). • Conduct time-limited promotions and advertising for specific products based on seasonal market cycles. For example, markets for air conditioners and dehumidifiers are best marketed in late spring/early summer. • Form relationships with builders to install ENERGY STAR appliances and lighting products in new homes. This track works best in conjunction with an ENERGY STAR New Homes program. • Develop/participate in special events/community-based outreach activities (e.g. distributing CFLs at community events, through churches, etc). The implementation contractor will be responsible for retailer outreach, campaign development and execution and rebate fulfillment (most likely involving a firm specializing in processing rebates).
Exit Strategy	The time-limited nature of the promotions that will characterize this program makes it relatively easy to exit this market if the program is found to be not cost-effective or if the Company's strategy changes. It will be important to emphasize as an element of the promotions that any rebates are available only on a first-come-first-served basis.
Marketing Strategy	The marketing strategy will need to map into the several elements of the implementation strategy. As a mass market program, this program will struggle to capture audience attention if it is marketed through standard mass media channels, and such channels can be very expensive. The most effective marketing strategy for downstream programs is to build awareness around specific events or promotions, which reinforces the likely seasonal- or event-based implementation strategy. One important consideration in both implementation and market strategy is the planning cycle of major retailers. Involving retailers in co-op advertising and, to some extent even getting their participation, requires that the program begin working with the retailers at least six months prior to the sales season for particular products as that is when retailers plan promotions. Essential elements of the marketing strategies will include: • Web placement with downloadable program information • POP materials (clings, hang tags, shelf talkers, stickers, etc.) for use with retail promotions • Print and radio ads – on-location radio broadcasts • Co-op advertising • In-store promotions staffed by field staff • Participation in national promotions such a Change a Light

Eligible Measures and Incentive Strategy

Measure	Incentive per Unit
Compact fluorescent lamp (CFL)	$2
ENERGY STAR Ceiling Fan	$35
ENERGY STAR De-humidifier (Existing)	$20
ENERGY STAR Dishwasher (Existing)	$30
ENERGY STAR Freezer (Existing)	$25
ENERGY STAR Window AC (10.8 EER, Existing)	$35

Milestones

February 2008 – Issue RFP for implementation services

April 2008 – Execute implementation contract

August 2008 – Complete detailed implementation plan

August – November 2008 – Program launch window – program would be implemented as a series of ongoing time-limited promotions.

August 2010 – Go/no-go decision on post-2010 program implementation.

EM&V Requirements	The Company will work with evaluators to establish deemed savings values for incented CFL technologies, so that evaluation activity will focus on verification of installation and estimates of net-to-gross ratios. A process evaluation involving consumer and retailer surveys will be conducted to assess the CFL recycling pilot effort, which will inform the structure of the expanded initiative. The evaluation approach will be contingent on the evaluation resources available to the study and the results of an evaluation planning approach that focuses evaluation resources on the programs with the most savings and the highest risk of inaccurate ex ante estimates. This program provides a single product, although somewhat different approaches to moving that product in the market are employed. The evaluation of market buy-down programs that do not collect participant contact information are challenging because of the difficulty in identifying where the bulbs are placed and how they are used. As a result the energy savings for the program will be evaluated by focusing on the coupon aspects of the program. Because the coupon will be filled out in many of the stores that do not elect to use the bulk buy-down aspects of the program, the evaluation should have enough participant contact information to conduct the evaluation using participant-supplied bulb installation and use information via a survey process. As a result, the evaluation will contact participants, who have purchased one or more bulbs using a sampling approach stratified by the number of bulbs purchased to obtain a representative sample within purchase patterns. These participants will be contacted to obtain the baseline bulb conditions and the CFL use conditions needed to calculate energy savings. The survey will obtain information about location and use, including storage for intended future use. If evaluation funds are available, a sample of participants will be asked to take part in a lighting logger study in which switching and burn hours are recorded and used to confirm energy savings. The survey will employ a battery of questions to establish free rider levels for the calculation of net to gross values. During the impact surveys process information will be collected on the ease of purchase and the influence of the incentive on the purchase decision as well as the satisfaction of the bulb under normal use conditions. Information will also be collected about relocation and lighting quality. In addition, information about the value and usefulness of the educational information will be collected. Interviews with program mangers and trade allies will be conducted to assess the operational conditions of the program and to identify ways to improve the program. Evaluation of the appliance element of the program will involve establishment of deemed savings values for the appliances and verification of installation based on phone calls to a sample of participants. The participants will be tracked via rebate applications. The process evaluations likely will focus on the retailer relationships and the efficacy of program marketing and promotions depending on the specific design employed. Lighting and appliance programs are heavily dependent on the specific form of outreach and the degree of retailer participation.

Administrative Requirements

Most direct program administrative requirements will be handled by one or more third party implementation contractors (Company might choose, for example to contract for lighting separately as part of the regional Change-a-Light campaign). The Company will manage the procurement of implementation services, provide policy direction, and provide oversight of program QA/QC, tracking and reporting. Activities to be undertaken by the implementer include:

- Account management
- Retailer/ manufacturer coordination
- On-the-ground coordination with other programs
- Field management and delivery
- Tracking—data tracking including incentive and savings, customer data, and retailer data
- Rebate processing/fulfillment*
- Customer support—toll free customer service line and on-line directory of participating retail stores (decision must be paid as to whether customer program inquiries should route through the existing AmerenUE call center and website).
- Reporting
- Marketing

The Company will need to allocate approximately .75 FTE during program start-up, with a steady-state requirement of 0.50 FTE for direct program management. The Company will need to develop a system for tracking key program data (this system will likely serve all programs). Company marketing/customer relations staff will be key participants in program design and approval of marketing strategies and collateral. Participation will be required of the Company's webmaster. Total FTE requirement during the 3-4 month start-up is 1.0 – 1.25 FTE Company-wide.

With respect to rebate fulfillment, an early decision must be made as to whether rebates will be processed by the implementation contractor or the Company. Standard practice uses the implementation contractor, but could require the Company to advance funds for the rebates, or to otherwise develop a process for quickly moving funds to the implementation contractor.

**(Note: the Company may consolidate incentive fulfillment across all programs)*

Estimated Participation

Measure Installations	2008	2009	2010
Compact fluorescent lamp (CFL)	764,539	988,726	1,243,024
ENERGY STAR Ceiling Fan	359	464	583
ENERGY STAR De-humidifier (Existing)	2,335	3,019	3,796
ENERGY STAR Dishwasher (Existing)	5,426	7,017	8,821
ENERGY STAR Freezer (Existing)	4,533	5,863	7,371
ENERGY STAR Window AC (10.8 EER, Existing)	283	366	461

Estimated Budget

Budget Category	2008	2009	2010	Total
Incentive Costs	$1,921,740	$2,547,384	$3,282,629	$7,751,753
Administrative Costs	$1,153,044	$1,528,431	$1,969,578	$4,651,052
Total	$3,074,784	$4,075,815	$5,252,207	$12,402,806

Savings Targets

Savings per Unit:

Measure	Unit	kWh/Unit	kW/Unit
Compact fluorescent lamp (CFL)	1 lamp	44	0.00
ENERGY STAR Ceiling Fan	Home	173	0.07
ENERGY STAR De-humidifier (Existing)	Home	250	0.07
ENERGY STAR Dishwasher (Existing)	Home	146	0.00
ENERGY STAR Freezer (Existing)	Home	247	0.02
ENERGY STAR Window AC (10.8 EER, Existing)	Home	420	0.16

Total Savings

Savings	2008	2009	2010	Total
Net-to-Gross Ratio	0.80	0.80	0.80	
MWh Savings	28,749	65,928	112,670	207,347
MW Savings	2.4	5.6	9.6	17.6

Program Metrics

The principal program metrics are those related to target energy and demand savings within the budget. Program delivery quality control metrics will be established related to complaint rates and rebate processing time. Once steady-state implementation is reached in 2009, the Company will monitor cost per kWh saved and cost-effectiveness. Deviations of more than 10% from levels estimated in the final implementation plan will result in formal program review and possible revision. In addition, the program harvest rate (the ratio of applications distributed to applications submitted) will be tracked to the extent possible. Past consumer rebate programs involving downloadable applications show that up to twice as many applications might be downloaded than actually submitted. Building confidence around this rate is necessary to develop reliable forecasts of participation and program impact.

Cost-effectiveness

Total Resource Cost Test: 2.29
Utility Cost Test: 3.99
Participant Test: 3.44
Rate Impact Measure Test: 0.94

PROGRAM	Residential Low Income
Objective	Deliver long-term energy savings and bill reductions to low-income customers through a variety of cost-effective lighting and appliance measures, and other building and shell improvements. The Company has committed to a $3 million budget for each year of implementation.
Target Market	The Company estimates a total of 247,000 low-income customers in its service territory. Initially, the target market would be low-income owners of single family homes. The program could also be expanded to low-income multifamily homes, multi-unit buildings, and non-profit commercial buildings.
Program Duration	Initial implementation of 2008 – 2010. The program is assumed to be continued throughout the planning period. The program will be re-assessed at the end of the first implementation cycle to determine if program changes are needed.
Program Description	The Company would work with participating partners or agencies to qualify low-income customers for the program. The program would consist of the following measures: • Window replacement • Outside and storm door installation or replacement • Attic and wall insulation • ENERGY STAR refrigerator and freezer replacement • ENERGY STAR gas furnace replacement • CFL installations • Programmable thermostat installation Customers who have participated in the program would be eligible for a special rate based on reduced energy use.

Implementation Strategy	Low income programs typically work through one of two models. The first model involves outsourcing the program to an implementation contractor that is responsible for recruiting, direct installation, auditing, scheduling work and QA/QC. The second model uses community-based organizations and perhaps existing weatherization service providers to deliver program services. This second model would involve integration with the existing DNR weatherization program. The appropriate model depends on the details of the Company's program design, quality of the existing weatherization infrastructure, the anticipated difficulty of tracking the Company's funds versus those from other sources, and the desire to offer an integrated program. Under the right conditions, the effectiveness of the Company's funds is maximized by integration into the existing DNR weatherization provider structure. The four key elements of the program are: (1) Recruiting; (2) Auditing and direct installation of low-cost measures; (3) Coordinating installation of more complex measures; and (4) Quality assurance. The basic implementation steps include:. o The Company and/or outside contractors or agencies will qualify customers based on poverty level and personal expenses, and will conduct pre-education activities. o Pre-education activities would consist of meetings with customers, an agreement to conduct energy audits, and weatherization kits. o The Company and/or outside contractors or agencies would conduct an energy audit. The audit would also include the installation of 8 CFLs. The customer would be required to attend and participate in the audit. o The customer would be required to attend education classes on energy savings and reductions. This would increase customer buy in into the program. o The remaining measures would be installed based on the audit and level of qualification. o The customer would then qualify for an incentive tariff. The tariff would be structured based on historical average monthly usage, and would result in a lower rate per kWh for meeting a reduction target. If the customer did not meet this target, the normal residential rate per kWh would apply.
Exit Strategy	Low income programs are some of the most complex to design and operate, involving a number of organizations and measures, and often, because of the labor requirements, do not prove to be cost-effective. Determining whether to exit the market often is not as simple as a go/no-go decision based on program economics, but also involves an assessment of the potential impact on the community of a withdrawal of program services. The most likely circumstance under which an exit would be straightforward would be if federal and state funding for weatherization increased substantially. On the other hand, the need for the program services is likely so great for low, and near-low-income families, the chances are slight that sufficient funding from other sources will materialize. An exit from this market, therefore, will need to consider community reaction, and the impacts on the community organizations that have been retained to support implementation. Most likely, if community-based groups are used to deliver the program, they will staff up based on the available funding and would likely need to downsize if funding is withdrawn.
Marketing Strategy	Marketing tactics would include direct mail and phone contact, and outreach through community organizations and churches, including participation in local meetings of low-income single family home owners. Corporate organizations with responsibility for community relations, and marketing/communications are key to the design of the marketing strategy. The program would be advertised via the Company's web site. Marketing collateral would be limited to a basic program brochure.

Incentive Strategy

The program would be set up on a sliding scale where rebates would be tied to % of poverty level. For customers that are at:

- 150% or below of the poverty level -> 100% of the incremental cost as a rebate
- 150% and 175% of the poverty level -> 90% rebate
- 175% and 200% of the poverty level -> 80% rebate
- 200% and 300% of the poverty level -> 70% rebate

Measure	Incentive per Unit
Ceiling Insulation (R-30)	$75
Compact fluorescent lamp (CFL)	$4
Doors R-4 (Existing)	$118
Low-E Windows (Existing)	$1,961
Programmable Thermostat (Existing)	$19
R-11 Wall Insulation	$400
Standard Refrigerator (Existing) - NAECA	$787

Milestones

February 2008 – Issue RFP for implementation services and begin meetings with community groups to explain the program offering and solicit feedback.

April 2008 – Execute implementation contract

June 2008 – Complete detailed implementation plan; execute grants/contacts with community groups to support recruiting.

June – September 2008 – Program launch window

August 2010 – Go/no-go decision on post-2010 program implementation.

EM&V Requirements

This is designed as a direct installation program, which boosts the likelihood that measures actually will be installed. The standard approach to weatherization impact analysis is to conduct pre- and post audits using standard home energy analysis software. The post-weatherization audit includes verification of measure installations. We recommend that, in addition, the post-installation audit be supplemented by billing analysis if sufficient pre-installation data are collected. This billing analysis would enable the Company and its partners to assess the program's impacts on actual bills and thus affordability.

This is arguably the most complex program proposed by the Company with potentially a large number of parties involved in customer outreach and measure installation, varying levels of assistance by income level, education requirements, and tracking requirements. This is perhaps the one program where the process analysis will be as important as the impact analysis, and it should be designed to test the program design and, particularly, the synchronization of the utility and non-utility parties in in-take, delivery of program services and follow-up.

Although all programs will be independently evaluated, we suggest hiring an evaluation firm with direct experience in evaluation of low income programs for this evaluation.

Administrative Requirements

The program would require administrative expenses for outside agencies that participate. This type of program can involve considerable planning and management, requiring up to 1 FTE during planning and ramp-up and .5 to .75 FTE could be required for program management, and would involve recruiting and continuing to work with community groups and customers. If the Company self-implements, the resource requirement would be at least 1 FTE and perhaps 2 FTE to manage recruiting, relationships with community groups and coordination of contractors. The work scheduling and quality control process can be very time intensive. During ramp-up support will be required from community relations, billing, customer service and marketing organizations.

Estimated Participation

The Company estimates that the $3 million annual budget will entail the participation of approximately 1,000 homes per year.

Measure Installations	2008	2009	2010
Ceiling Insulation (R-30)	867	867	867
Compact fluorescent lamp (CFL)	8,049	8,049	8,049
Doors R-4 (Existing)	1,002	1,002	1,002
Low-E Windows (Existing)	402	402	402
Programmable Thermostat (Existing)	1,008	1,008	1,008
R-11 Wall Insulation	768	768	768
Standard Refrigerator (Existing) - NAECA	1,007	1,007	1,007

Estimated Budget

Budget Category	2008	2009	2010	Total
Incentive Costs	$1,846,226	$1,892,382	$1,939,691	$5,678,299
Administrative Costs	$1,107,736	$1,135,429	$1,163,815	$3,406,980
Total	$2,953,962	$3,027,811	$3,103,506	$9,085,279

Savings Targets

Measure	Unit	kWh/Unit	kW/Unit
Ceiling Insulation (R-30)	Home	261	0.11
Compact fluorescent lamp (CFL)	1 lamp	44	0.00
Doors R-4 (Existing)	Home	144	0.03
Low-E Windows (Existing)	Home	1,903	0.48
Programmable Thermostat (Existing)	Home	1,907	-0.70
R-11 Wall Insulation	Home	1,030	0.54
Standard Refrigerator (Existing) - NAECA	1 fridge	1,478	0.21

Total Savings :

Savings	2008	2009	2010	Total
Net-to-Gross Ratio	0.95	0.95	0.95	
MWh Savings	4,581	9,162	13,742	27,485
MW Savings	0.3	0.5	0.8	1.6

Program Metrics	In addition to energy and demand savings, key metrics include number of customers served, savings per home, cost per home, and project cycle time.
Cost-effectiveness	Total Resource Cost Test: 0.88 Utility Cost Test: 1.00 Participant Test: 1.82 Rate Impact Measure Test: 0.60

PROGRAM	Residential Multifamily
Objective	Deliver cost-effective conservation services to the multi-family housing market, with a focus on common area improvements. Secondary focus on affordable housing properties.
Target Market	Owners, managers and developers of market rate multi-family housing (more than 4 units). Focus on management companies holding multiple properties.
Program Duration	Initial implementation of 2008 – 2010. The program is assumed to be continued throughout the planning period. The program will be re-assessed at the end of the first implementation cycle to determine if the program should be continued.
Program Description	The program would provide installation of measures in tenant spaces related to central AC unit diagnostics and tune-up. It would also provide significant incentives for replacement of standard efficiency common area lighting and incandescent and fluorescent exit signs with LED exit signs. More expensive or complex measures (windows, replacement of roof-top AC units would be subject to an energy analyses to validate cost-effectiveness and set incentive levels. The incentives for these measures would be calculated in a fashion similar to the C&I Custom Incentive program, although the threshold payment period would be set at 1.5 years, recognizing that this is market that is harder to reach than the C&I market. The program would include limited technical services such as walk-through audits to determine approximate measure

Implementation Strategy	This program most likely would be implemented by a third party contractor. However, even within this third party structure there are two different implementation structures. The first uses the implementation contractor to recruit customers, perform technical services such as audits, arrange pricing and assist with arranging for installation contractors. The alternative is to recruit trade allies, negotiate pricing and qualify the contractors, and then allow them to market the program. Incentives would be paid directly to contractors based on proof of performance. Some experience shows that this second approach is more effective in driving actual savings. It does, however, require more vigilant QA/QC. The implementation steps outlined below assume a hybrid model that includes some level of direct outreach to customers. o Set final equipment eligibility and rebate levels, and develop contractor participation agreements. Most multi-family programs achieve most of their savings through common area lighting and in-unit CFL installations. Although the program should provide for broader measure eligibility, the incentive structure should be focused on generating activity with lighting replacement. Standard lighting technologies would be eligible for standard incentives. o Recruit trade allies. The program would focus on outreach to lighting contractors. Interested contractors would attend brief training sessions at which program rules (eligible equipment, installation standards, liability issues and verification requirements) would be presented. Contractors wishing to participate in the program would be required to sign a participation agreement following the training. This agreement would outline how the contractors are to present the program, installation standards, requirements for logging installations, requirements related to access agreements, etc. Contractors would be provided with basic program collateral describing the program. o Contractors sell the projects with non involvement from the Program aside from verification and incentive payment. Customers would be required to agree to provide access to their facilities for verification. o The Program would conduct direct outreach to owners and managers of multifamily properties through direct mailing. These customers could request brief energy surveys of their properties that would be combined with some direct installation of measures. In addition, these customers could directly undertake efficiency improvements with facility staff or a contractor of their choosing. Rebate levels for common measures would be the same, but the program would also provided customized rebates for more complex cost-effective measures. o Monitor installations. The first set of projects performed by each contractor would be site-verified, with random site verifications thereafter to ensure that installations are being performed properly and that equipment is being installed as reported. All projects undertaken directly by the customer would be site-verified prior to payment. o Pay incentives. This program would not use a reservation system. Upon completion of a project, the contractor would submit an incentive application, including (1) Property manager acceptance of the completed project, and documentation of the types and location of installed equipment. Subject to the verification process outlined above, the incentives would be paid by the implementation contractor or the Company.
Exit Strategy	Since multifamily projects can involve a longer sales cycle, any exit from this market needs to take account of projects in development. A minimum of three months notice should be provided prior to exit to capture these projects. This program is intended as a resource acquisition program as opposed to a market transformation initiative. Although there is likely to be some transformative effect, there is no natural market exit point based on market share. Similar programs have been run over many years in some jurisdictions without saturation. Program evaluators periodically should examine market effects to assess whether in fact property owners and managers have significantly shifted their buying practices with respect to energy efficient products. In addition, if evaluators find the installation rate or persistence of CFLs within this market is low, despite direct installation, the program most likely will not be cost-effective to pursue.

Marketing Strategy

The marketing strategy has two-tracks; one aimed at lighting contractors and the other at property owners and managers. Marketing tactics would include direct mail and phone contact, participation in local meetings of multifamily property managers. The program would be advertised via the Company's web site. Marketing collateral would be limited to a basic program brochure.

Eligible Measures and Incentive Strategy

Direct install and cash-back rebates

Measure	Incentive per Unit
1 4' T8 32 watt lamps with electronic ballast and reflector	$38
1 8' T8 59 watt lamps with electronic ballast and reflector	$67
2 4' Super T8 28 watt lamps with electronic ballast	$14
2 4' T8 32 watt lamps with electronic ballast	$21
2 4' T8 32 watt lamps with electronic ballast with dimming system	$55
2 4' T8 32 watt lamps with electronic ballast with occupancy sensors	$32
2 8' Super T8 59 watt lamps with electronic ballast	$33
2 8' T8 59 watt lamps with electronic ballast with occupancy sensors	$69
Central AC (Correct charge, Existing)	$68
Electroluminescent Exit Sign (New)	$81
Electroluminescent Exit Sign Retrofit Kit	$78
Increase blower speed	$33
Infiltration = 0.35 ACH	$80
Integral CFL, screw-in	$4
LED Exit Sign (new)	$49
LED Exit Sign (retrofit kit)	$38
Modular CFL, pin based	$35
Occupancy sensor - Assume control 3 2-lamp fixtures w/T8 34W EL Ballast	$58
R-11 Wall Insulation	$86

Milestones

February 2008 – Issue RFP for implementation services

April 2008 – Execute implementation contract

August 2008 – Complete detailed implementation plan

August - November 2008 – Program launch window

August 2010 – Go/no-go decision on post-2010 program implementation.

EM&V Requirements	Baseline or market characterization studies will be used to inform the program scope and measure mix selected. Evaluations will be designed to ensure that energy savings meet expectations and that participants are satisfied with installed measures. Will include estimation of free-ridership and spillover, and will be conducted at the most comprehensive level possible given time and budget constraints. In unevaluated program years, a basic report describing program activities, budget and expenditures, estimated savings and lessons learned will be developed. The evaluation approach will be contingent on the evaluation resources available to the study and the results of an evaluation planning approach that focuses evaluation resources on the programs with the most savings and the highest risk of inaccurate ex ante estimates. This program could have two independent but coordinated component-focused evaluation efforts that need to be conducted simultaneously. T Low-Cost Direct Installs The direct install evaluation will be based on the coordination of two evaluation approaches. First the program records will be reviewed to extract the listing of the installed measures and the baseline conditions associated with the direct install. These will serve as the platform from which participant surveys will be used to confirm the information in the tracking system, including the pre-installed baseline/operational conditions. In cases where the tracking system excludes baseline conditions, the survey will establish the operational and environmental conditions from which baseline conditions different from the deemed value assumptions will be adjusted. When baseline data is available in the tracking system, the baseline information from the tracking system will be adjusted to reflect the survey results in the calculation of net savings. The non-participant audit survey will also be structured to identify the level of comparable low-cost actions taken by non-participants to net out the effects of free riders for the direct install component. The information from the surveys along with reviews of current evaluation literature will serve as the basis for adjusting deemed values over time. Rebated HVAC/Lighting The rebated lighting evaluation will be conducted at the same time as the previous two studies so that baseline and operational use conditions associated with these measures will be covered in the participant and the non-participant surveys. Here again, the non-participant survey will serve to net-out the program-induced measures from free ridership savings. However, for a sample of the HVAC and lighting projects on-site verification efforts will be used to confirm the installations and the use conditions. The evaluation results from the surveys and the on-site verification efforts will be used to adjust the assumptions behind the deemed savings estimates and will be used to establish new deemed values for future years. The process evaluations will focus primarily on the sales process involving trade allies and the installation process as these two elements typically are the most crucial in a multifamily program where the sale can be extremely challenging.
Administrative Requirements	Ramp-up period would require .25-.5 FTE for planning and program design. If the program is implemented using a contractor, the steady-state staffing requirement is approximately .25 for verification and general management. This program requires relatively ongoing support from other corporate elements.

Estimated Participation

Measure Installations	2008	2009	2010
1 4' T8 32 watt lamps with electronic ballast and reflector	387	510	656
1 8' T8 59 watt lamps with electronic ballast and reflector	10	13	17
2 4' Super T8 28 watt lamps with electronic ballast	1,318	1,738	2,236
2 4' T8 32 watt lamps with electronic ballast	791	1,043	1,342
2 4' T8 32 watt lamps with electronic ballast with dimming system	69	91	117
2 4' T8 32 watt lamps with electronic ballast with occupancy sensors	701	924	1,189
2 8' Super T8 59 watt lamps with electronic ballast	28	36	47
2 8' T8 59 watt lamps with electronic ballast with occupancy sensors	16	21	27
Central AC (Correct charge, Existing)	0	1,004	1,324
Electroluminescent Exit Sign (New)	5	6	8
Electroluminescent Exit Sign Retrofit Kit	5	7	8
Increase blower speed	0	1,218	1,607
Infiltration = 0.35 ACH	563	742	955
Integral CFL, screw-in	39,750	52,430	67,441
LED Exit Sign (new)	5	7	9
LED Exit Sign (retrofit kit)	6	7	10
Modular CFL, pin based	6,122	8,075	10,387
Occupancy sensor - Assume control 3 2-lamp fixtures w/T8 34W EL Ballast	7	9	12
R-11 Wall Insulation	96	126	162

Estimated Budget

Budget Category	2008	2009	2010	Total
Incentive Costs	$524,728	$823,284	$1,089,275	$2,437,287
Administrative Costs	$131,182	$205,821	$272,319	$609,322
Total	$655,910	$1,029,105	$1,361,593	$3,046,608

Savings Targets

Measure	Unit	kWh/Unit	kW/Unit
1 4' T8 32 watt lamps with electronic ballast and reflector	4 ft. 2 lamp fixture	178	0.03
1 8' T8 59 watt lamps with electronic ballast and reflector	8 ft. 2 lamp fixture	251	0.04
2 4' Super T8 28 watt lamps with electronic ballast	4 ft. 2 lamp fixture	78	0.01
2 4' T8 32 watt lamps with electronic ballast	4 ft. 2 lamp fixture	64	0.01
2 4' T8 32 watt lamps with electronic ballast with dimming system	4 ft. 2 lamp fixture	130	0.02
2 4' T8 32 watt lamps with electronic ballast with occupancy sensors	4 ft. 2 lamp fixture	117	0.02
2 8' Super T8 59 watt lamps with electronic ballast	8 ft. 2 lamp fixture	82	0.01
2 8' T8 59 watt lamps with electronic ballast with occupancy sensors	8 ft. 2 lamp fixture	163	0.03
Central AC (Correct charge, Existing)	Home	351	0.25
Electroluminescent Exit Sign (New)	1 sign	381	0.05
Electroluminescent Exit Sign Retrofit Kit	1 sign	381	0.05
Increase blower speed	Home	558	0.00
Infiltration = 0.35 ACH	Home	126	0.19
Integral CFL, screw-in	1 compact lamp	235	0.04
LED Exit Sign (new)	1 sign	351	0.04
LED Exit Sign (retrofit kit)	1 sign	351	0.04
Modular CFL, pin based	1 compact lamp	235	0.04
Occupancy sensor - Assume control 3 2-lamp fixtures w/T8 34W EL Ballast	1 wall box	214	0.18
R-11 Wall Insulation	Home	172	0.13

Total Savings

Savings	2008	2009	2010	Total
Net-to-Gross Ratio	0.89	0.89	0.89	
MWh Savings	10,012	24,136	34,026	68,173
MW Savings	1.8	4.3	6.2	12.3

Program Metrics

The primary metrics are the energy and demand savings targets. Annual deficits of greater than 10% should trigger program review and redesign. Secondary metrics pertain to the verification rate of direct install measures. If installation rates fall below 90%, program redesign may be warranted.

Cost-effectiveness	Total Resource Cost Test: 2.63 Utility Cost Test: 3.26 Participant Test: 3.49 Rate Impact Measure Test: 0.93

PROGRAM	Residential New HVAC
Objective	Promote proper sizing and installation of new residential central AC units and capture the associated savings. Transform current HVAC installation practices.
Target Market	Dealers/installers of residential central AC units. Secondary target is new home builder community.
Program Duration	Three year initial program implementation beginning in 2008. If the program is successful in the first three years, a relatively high percentage of contractors should be trained by the end of the period, arguing for program close-out.
Program Description	Many new central air conditioning units are under- or more commonly, over-sized resulting in frequent cycling and inefficient operation of the unit. Proper sizing of the units typically is accomplished using Manual J, the residential central AC sizing protocol developed by the Air Conditioning Contractors of America (ACCA) that uses detailed heat load calculations. Even where HVAC contractors use Manual J they can improperly apply the protocol. This program would target training at HVAC installers in the proper use of the Manual J and would provide modest incentives for proper application of the protocol.
Implementation Strategy	The value of this program depends critically on current practice within the AmerenUE territory. Therefore, before initiating this program, the Company should undertake a simple market study of current sizing practices. To the extent that Manual J-8 currently is widely used, the Company should consider dropping the program as it will be difficult to identify and control for free riders. If the Company proceeds, it most likely would retain an implementation contractor responsible for recruiting, incentive fulfillment, and training. For program economy this contractor should be the same one retained to implement the residential HVAC Diagnostics and Tune-Up Program. The key steps in the implementation process include: o Recruit HVAC contractors to attend training sessions on the proper use of Manual J. Contractors receiving the training will receive certification making them eligible for incentives. o Organize a limited number of building training sessions (ideally coupled with ENERGY STAR Homes technical services) to emphasize the importance of proper sizing to customer comfort and home energy costs. o Pay incentives to eligible contractors based on documented installations based on proper use of Manual J. o Direct site verification of a percentage of each HVAC installers' projects to ensure compliance.
Exit Strategy	This program is intended ultimately to transform the practices of HVAC contractors. However, the program will not impact stocking practices or vendor-customer relationships. As such, exit from this program can occur quickly if it proves to be ineffective. In any event, the program has a limited duration as within a three-year implementation cycle, a critical mass of contractors should be reached.
Marketing Strategy	The Program would employ direct recruiting of HVAC contractors using phone and mail. The Program would also be listed on the Company's web site with information on incentives and upcoming training sessions.

Eligible Measures and Incentive Strategy

Measure	Incentive per Unit
ENERGY STAR Central AC (14 SEER, Existing)	$136
Size AC units to 100% of Manual J	$103

Milestones

February 2008 – Issue RFP for implementation services

April 2008 – Execute implementation contract

June 2008 – Complete detailed implementation plan

June - September 2008 – Program launch – A launch later than May will likely lose a substantial portion of potential first year projects, as many sales occur at the beginning of the heating season.

August 2010 – Go/no-go decision on post-2010 program implementation.

EM&V Requirements

The evaluation approach will be contingent on the evaluation resources available to the study and the results of an evaluation planning approach that focuses evaluation resources on the programs with the most savings and the highest risk of inaccurate ex ante estimates. This program focuses on creating and meeting the demand for properly higher efficiency air conditioning and for properly sized unit installs.

The evaluation effort will involve as assessment of the degree of change in the sizing of installed units and the increase in the installation of SEER-13 or higher units, above what would have occurred in the market without the program.

The first part of the evaluation will involve the implementation of a market practice baseline of the sizing and installation practices of participating and non-participating trade allies. These interviews will focus on how trade allies size units and their use of manual J or similar practices. The purpose of the interview will be to establish the market baseline relative to the degree to which proper sizing is occurring by trade allies in general, and by program partners. The baseline interview will focus on pre-program practices and the extent to which those practices are used in the market. If there are sufficient evaluation resources the evaluation will include an on-site verification effort in which a sample of newly retrofit and new-installs will be examined by the evaluation team and used to adjust the self-reported baseline practices.

Periodically this interview will be repeated with both participants and non-participants to track changes in the market caused by the program. As the program's influences are quantified via the baseline tracking interviews the energy consumption and demand differences in the movement of the market baseline practice and the participant practice will be estimated using weather adjusted building modeling approaches of the two scenarios.

The second element of the strategy will include verification of a sample of homes for which incentives were claimed by HVAC dealers. The EM&V contractor will replicate Manual J calculations to verify proper sizing. The baseline will need to be deemed based on typical cooling load.

The process evaluation will be conducted at the same time as the impact study. This will involve reviews of the program materials, interviews with program mangers and interviews with participating and non-participating trade allies and end-use customers. The process evaluations will focus on identifying experiences, satisfaction and the development of recommended changes to the program.

Administrative Requirements

If the Company chooses to contract for implementation, administrative requirements for this program are expected to be quite low. The start-up and ongoing FTE requirement would be subsumed under that for the Residential HVAC Diagnostics and Tune-Up program. Limited participation from the Company's marketing organization would be needed, and no direct involvement from account management would be required.

Estimated Participation

Measure Installations	2008	2009	2010
ENERGY STAR Central AC (14 SEER, Existing)	0	1,258	1,660
Size AC units to 100% of Manual J	0	1,071	1,412

Estimated Budget

Budget Category	2008	2009	2010	Total
Incentive Costs	$0	$324,867	$439,217	$764,084
Administrative Costs	$0	$194,920	$263,530	$458,450
Total	$0	$519,787	$702,747	$1,222,534

Savings Targets

Savings per Unit:

Measure	Unit	kWh/Unit	kW/Unit
ENERGY STAR Central AC (14 SEER, Existing)	Home	300	0.25
Size AC units to 100% of Manual J	Home	1,879	0.03

Total Savings

Savings	2008	2009	2010	Total
Net-to-Gross Ratio	0.80	0.80	0.80	
MWh Savings	0	1,464	3,394	4,858
MW Savings	0.0	0.3	0.7	1.0

Program Metrics

The primary program metrics are estimated demand and energy savings. A key secondary metric is the number of contractors trained in the use of Manual J. At this point we do not have data on the size of the HVAC contractor market in the AmerenUE service territory. However, the final implementation plan should set metrics based on better information regarding market size.

Cost-effectiveness

Total Resource Cost Test: 1.71
Utility Cost Test: 2.13
Participant Test: 2.62
Rate Impact Measure Test: 0.92

PROGRAM	Residential DR – Direct Load Control
Objective	This program is designed to acquire peak demand reduction through fully-automated Direct Load Control demand response systems for the residential sector.
Target Market	Residential single family homes with Central Air Conditioners (AC). Residential multifamily homes could also be eligible if they singularly have control of and pay for electric service. Other electric appliances, such as hot water heaters and pool pumps could also be incorporated into the program.
Program Duration	Initial implementation period is 2008 – 2010. The program is assumed to continue throughout the planning period.
Program Description	The majority of the Company's residential customers have a Central AC system. These systems typically account for half of home's summer peak demand. Under this program, the Company provides for free equipment and installation of a smart thermostat that uses a one-way paging strategy. During summer peak periods, the Company activates the thermostats resulting in cycling of the Central AC unit. Customers can be paid an incentive in return for giving the Company the option to cycle their air conditioner. This program resembles the CPP program with Smart Control. The Company benefits through reduced peak power purchases and increased electric system reliability. Customers can benefit through reduced energy bills and an additional incentive.
Eligible Measures	Smart thermostat linked to Central AC
Implementation Strategy	This program could be implemented directly by the Company using installation contractors or could be contract with a program implementation contractor to manage all elements of implementation. The Company has a choice of various load control devices; by using a smart thermostat, the Company would be able to switch customers between various demand response programs without incurring additional costs. The Company would contract with an installation contractor to install a smart thermostat in each participating home. The customer would not incur any equipment or installation costs. Direct Load Control events are usually triggered by periods of peak demand. These usually occur during the summer between 3pm and 7pm. Customers receive an automated phone call or email 24 hours prior to an event, notifying them that their thermostats will be subject to utility control. During periods of peak demand, the Company would cycle the Central AC system for participating customers. Depending on the equipment selected, the Company could provide various cycling options and could allow the customer to override the smart thermostat. For example, customers that chose to override the smart thermostat would receive a reduced or no incentive. The Company could also incorporate a web-based notification and tracking system for use by customers.
Exit Strategy	A program termination would be based on program cost-effectiveness falling below acceptable levels. Cost-effectiveness will be greatly affected by churn rate and acquisition cost. If an exit is warranted, market impacts will be slight since only participating end use customers are significantly affected by the program. Experience suggests that direct load control programs are scalable and so this program can be viewed to some extent as a hedge that can be grown or shrunk in response to the performance of other portfolio elements.
Marketing Strategy	Customers would be recruited using an annual direct mail bill insert campaign, with recruiting supported initially by a broader awareness-building campaign based largely on print media. The program should also be co-marketed with the efficiency programs aimed at central HVAC systems. A customer hit rate of between 7% and 10% is considered typical.

Incentive Strategy

Measure Installations	2008	2009	2010
Direct load control - air conditioner	3,308	3,460	3,617

Milestones

February 2008 – Issue RFP for implementation services (jointly with the Custom Incentive Program)

April 2008 – Execute implementation contract

June 2008 – Complete detailed implementation plan

June - September 2008 – Program soft launch; contractor training; initial marketing

September – October 2008 – Program launch window

August 2010 – Go/no-go decision on post-2010 program implementation.

EM&V Requirements

The key EM&V issue is the verification of load reduction, both in terms of the reduction per control point as well as the signal success rate which affects the average reduction across control points.

Components of the program evaluation are planned to include:

- Review of existing application and tracking forms, and recommending changes on a go-forward basis, if needed.
- Review load research and engineering studies and/or other supporting documentation in order to verify the consistency of the load reduction estimates with other available information.
- Review and comment on the on-site forms to be used by program implementers for verification that equipment is installed and operable.
- Review of on-site verification results.

The Company collects usage and billing data using CellNet's automatic meter reading (AMR) system. These same data can then used for evaluation purposes.

Process evaluation tends to be relatively less important for standard load management programs. However, two key process metrics to be tracked are the ratio of customers acquired to customers recruited, and customer churn rate, as both metrics can significantly affect the cost of the program.

Administrative Requirements

Administrative requirements will vary depending on the whether the Company implements the program or contracts for implementation services. If the Company implements the program directly, the start-up FTE requirements will range between .75 and 1 FTE to arrange for installation services, manage the installation of control protocols and software, and prepare the initial marketing recruiting campaign. Steady-state requirements are approximately .25 - .5 FTE on an annual basis, although the requirements are concentrated during the annual recruiting and installation cycle. Participation by the Company's marketing and operations staffs will be required for start-up and ongoing implementation. If an implementation is contracted out, the start-up requirement should drop to .5 FTE, with a steady-state level of .25 FTE or less.

Estimated Participation

Measure Installations	2008	2009	2010
Direct load control - air conditioner	3,308	3,460	3,617

Estimated Budget

Budget Category	2008	2009	2010	Total
Incentive Costs	$915,395	$1,050,857	$1,197,571	$3,163,822
Administrative Costs	$228,849	$262,714	$299,393	$790,956
Total	$1,144,243	$1,313,571	$1,496,964	$3,954,778

Savings Targets

Savings per Unit: Savings are estimated at 1.75 kW per home, or between one-third and one-half of an average residential customer's peak demand.

Measure	Unit	kWh/Unit	kW/Unit
Direct load control - air conditioner	1 building	158	1.75

Total Savings :

Savings	2008	2009	2010	Total
Net-to-Gross Ratio	0.95	0.95	0.95	
MWh Savings	495	1,013	1,554	3,061
MW Savings	5.5	11.3	17.3	34.0

Program Metrics

The primary metric is demand reduction. Key secondary metrics include reduction per customer, churn rate and acquisition cost.

Cost-effectiveness

Total Resource Cost Test: 1.93
Utility Cost Test: 1.78
Participant Test: 1.34
Rate Impact Measure Test: 1.53

PROGRAM	Residential Demand response – Critical Peak Pricing w/ Smart Technology
Objective	This program is intended to offer residential customers an opportunity to curtail load voluntarily in response to a critical peak pricing tariff, but with the assistance of a control regime that can be programmed to respond to the pricing structure. Based on initial pilot implementation using a smart thermostat, the program is expected to yield an approximately 23 percent reduction in demand. The maximum demand reduction over the three-year initial implementation period is expected to be 1.8 MW. It is unlikely that the Company will implement both a CPP with Smart Technology and a CPP-only program given that the markets overlap almost entirely. The Company will continue to evaluate its options and will propose the most cost-effective option for implementation.
Target Market	High use residential single family homes. Residential multifamily homes could also be eligible if they singularly have control of and pay for electric service.
Program Duration	This program is assumed to begin in 2010. The program is assumed to continue throughout the planning period.
Program Description	This program combines a critical peak pricing tariff with a customer control architecture that enables customers to select control regimes in response to prices and/or enables the Company to control devices based on customers' specified control regimes. The specific technology employed may be similar to that used for the Company's pilot residential CPP program, or a more sophisticated system offered by demand response vendors. Customers enroll in a CPP tariff. The Company or its contractor provides for installation of the customer control equipment at no cost to the customer. Depending on the nature of the system, the customer will then set an equipment control regime based on the tariff's pricing periods. Again, depending on the specific structure of the system, during summer critical peak periods, the Company will activate control of specific equipment with limited customer override options. The Company benefits through reduced peak power purchases and increased electric system reliability. Customers can benefit by shifting use from on-peak and critical peak periods to off and mid-peak periods; however they do not receive an additional incentive beyond whatever equipment is provided.
Eligible Measures	NA
Implementation Strategy	The Company will develop CPP tariff that reflects the characteristics of the program design. An implementation contractor would be used to recruit customers and install the required equipment and software. Depending on the system and vendor chosen, there may or may not be a cost to the costumer. Given the program's ambitious goals and the uncertainties associated with participation, the contractor would be paid based on installed customers. Customers would be required to enroll in the program for a minimum of one cooling season, the Company would implement the tariff and billing change. CPP events are triggered by temperature; there are a maximum number of events per year and with a maximum number of hours per event. Customers receive an automated phone call or email 24 hours prior to an event, notifying them that the higher CPP rate will apply during the critical peak period and their nominated equipment will be subject to utility control. During the event, the nominated equipment will be controlled by the Company. In the case of an air conditioner, the control will automatically increase the temperature to a pre-determined level. The thermostats can be set to multiple levels, depending on the temperature change and the number of hours. Customers will be able to override the control regime by either placing a phone call to the implementation contractor or Company's Call Center or by using a program website. Overriding will not entail a penalty other than the customer being charged the CPP.

Exit Strategy	The complexity of an exit depends on the specific system installed. A program modeled after the Company's CPP with Smart Thermostat pilot primarily would affect end use customers and there is relatively little broader market impact. Withdrawal of the program would impact only those customers who would be shifted back to standard tariffs, and such a shift can occur relatively quickly with several months notice to customers. A decision to exit the market would be based primarily on participation, attrition rate and impact. If the program does not show the expected ramp-up in participation over a several-year period, if program churn rates are high, or if participants are not showing the expected reductions, the Company may reconsider this program. A program termination in the case of a more complex vendor-supplied system could be more difficult, as some vendors will require multi-year contracts as a way to amortize their program costs and manage risk.
Marketing Strategy	The value proposition can be difficult to convey for the mass market, since no direct incentive is involved. However, the provision of the smart technology will carry significant value for the customer segment that seeks more control over their energy expenditures and is relatively technologically savvy. Nevertheless, program targeting and messaging are critical given the demand reduction target. The Company first will identify high summer usage customers based on billing records and then net out customers already on the Company's direct load control program. An implementation contractor will be provided with the initial contact list and will use direct mail and phone solicitation targeted at these customers. The Company will provide limited print and radio ads to raise the general awareness of the program. The program should also be co-marketed with the efficiency programs aimed at central HVAC systems. Straightforward program information, including a bill calculator will be included on the Company's website.
Incentive Strategy	<table><tr><th>Measure</th><th>Incentive Levels per Unit</th></tr><tr><td>Smart thermostat equipment</td><td>$150 value</td></tr><tr><td>Smart thermostat installation</td><td>$100 value</td></tr></table>
Milestones	February 2008 – Issue RFP for implementation services April 2008 – Execute implementation contract July 2008 – Complete detailed implementation plan July – November 2008 – Program soft launch; initial marketing November 2008 – March 2009 – Program launch window August 2010 – Go/no-go decision on post-2010 program implementation.

EM&V Requirements

The key EM&V issue is the verification of load reduction, both in terms of the reduction per control point as well as the signal success rate which affects the average reduction across control points.

Components of the program evaluation are planned to include:

- Review of existing application and tracking forms, and recommending changes on a go-forward basis, if needed.
- Review load research and engineering studies and/or other supporting documentation in order to verify the consistency of the load reduction estimates with other available information.
- Review and comment on the on-site forms to be used by program implementers for verification that equipment is installed and operable.
- Review of on-site verification results.

The Company collects usage and billing data using CellNet's automatic meter reading (AMR) system. These same data can then used for evaluation purposes.

Process evaluation tends to be relatively less important for standard load management programs. However, two key process metrics to be tracked are the ratio of customers acquired to customers recruited, and customer churn rate, as both metrics can significantly affect the cost of the program.

Administrative Requirements

Program administration will involve selection and supervision of an implementation contractor, oversight marketing activities, program management/tracking and notification of curtailment events. The program requires few staff resources for either ramp-up or ongoing management (.25 FTE) except insofar as substantial marketing support will be required.

Estimated Participation

Measure Installations	2008	2009	2010
Critical peak pricing - CPP events with smart thermostat	0	0	1,503

Estimated Budget

Budget Category	2008	2009	2010	Total
Incentive Costs	$0	$0	$404,771	$404,771
Administrative Costs	$0	$0	$101,193	$101,193
Total	$0	$0	$505,964	$505,964

Savings Targets

Savings per Unit: Based on the Company's 2005 pilot, savings are estimated at 1.24 kW per home.

Total Savings:

Savings	2008	2009	2010	Total
Net-to-Gross Ratio	0.95	0.95	0.95	
MWh Savings	0	0	159	159
MW Savings	0.0	0.0	1.8	1.8

Program Metrics	In addition to the primary metric of peak load reduction, the program should be monitored with respect to average demand reduction per participant, program attrition rate and customer acquisition cost. The attrition rate will greatly affect acquisition cost.
Cost-effectiveness	Total Resource Cost Test: 1.37 Utility Cost Test: 1.30 Participant Test: 1.24 Rate Impact Measure Test: 1.16

4.2.3. Business Energy Solutions

Like the Residential Energy Solutions program the AmerenUE Business Energy Solutions Program offers a complementary set of energy management options to commercial and industrial customers. Many customers may initially enter the program through the prescriptive program elements, which focus primarily on basic measure retrofits, e.g., lighting and motors. These simpler measures will also provide a conduit for the Company to build relationships with business customers. As the program matures, the Company will use Business Energy Solutions to promote more comprehensive commercial and industrial energy management options.

The Company will offer a range of options through the customized efficiency track that can reach businesses with a greater variety of energy using processes and typically have larger total usage. As the Company continues to build relationships with medium and large customers it may develop programs elements that package several custom measures into a suite that targets a specific sector.

The program will also foster the development of a local energy efficiency industry in the AmerenUE territory. By providing increased marketing, technical assistance, and actual incentives for participation, the Company will help to drive more customers toward high-efficiency buildings. Various program elements will target new load sources during initial building design and existing load sources through retrofit and retro-commissioning projects. The program will support the nascent retro-commissioning and “green building” industries in the utilities’ territory, transforming the market over time and reducing the cost of increased efficiency by building local capacity for high-performance building design and operation.

Finally, as with the Residential Solutions offering, the Business Energy Solutions program will promote demand response options as well as efficiency measures.

PROGRAM	C&I Custom Incentive
Objective	To acquire energy and demand savings via commercial and industrial customer energy efficiency improvements via customized incentives. Many C&I projects involve multiple measures with interactive effects, process improvements and/or complex measures for which deemed savings/simple savings algorithms combined with prescriptive incentives are not appropriate. This program will offer customized incentives based on calculated savings for specific customer projects. This program will operate in close coordination with the C&I Prescriptive Incentive program.
Target Market	Existing commercial, government, institutional and industrial customers of all sizes with cost-effective efficiency opportunities for which prescriptive incentives are not available.
Program Duration	Initial program implementation period is three years, commencing in 2008 and ending in 2010. Program is assumed to extend throughout the planning period.
Program Description	The Program will provide financial assistance to customers to support implementation of high-efficiency opportunities which are available at the time of new equipment purchases, facility modernization, and industrial process improvement. The incentives will be customized based on estimated energy savings subject to a cap. The cap can be single tier (e.g. $/kWh of first year savings) or can be multi-tiered with caps based on maximum incentive per kWh, minimum payback (e.g. buy-down to a 2 year payback), and maximum share of project cost. The advantage of a single tier cap is that customers and allies are better able to estimate the level of incentive in project evaluations. This is typical how standard offer programs operate. A multi-tiered cap is appropriate if there are concerns that the program would be overpaying for projects or attracting too high a level of free riders It is often assumed that C&I customers typically will make an investment without incentive if the payback is below two years. We have found this not to be the case consistently, particularly with projects that entail significant perceived risk. Initially, the program will be offered without extensive technical support (detailed audits, co-funding of studies, etc). The program logic model assumes that most projects will be initiated by trade allies and more sophisticated customers with in-house energy management who, as part of the project assessment, will prepare such studies (generally consistent with recent program experience for We Energies). Should program volume lag expectations, the Company reserves the right to provide financial support for project studies or independent review of projects to confirm savings, recognizing that extensive technical support can significantly impact program cost-effectiveness. The program will include internal review of all custom incentive applications to verify savings calculations and the program will reserve the right to site-verify data prior to approval. The primary delivery channel for custom projects will be trade allies/energy service companies, and Company account representatives. Outreach to trade allies to explain project eligibility and the incentive structure is critical. Again, depending on project volume, the Company will consider a supplemental ally incentive to stimulate project development. The key to the success of a custom incentive program is minimizing program application complexity and a straightforward incentive structure. If the final program design is too complex, allies will by-pass the program in favor of the prescriptive incentive program.

Implementation Strategy	The program will be administered by an implementation contractor selected through an RFP or RFQ process. Project QA/QC review and verification will be performed by the implementation contractor or third-party engineering consultants. Efficiency measure implementation and installation will be the responsibility of the customer. AmerenUE approval will be required for any incentive application exceeding $10,000. Coordination with AmerenUE account service staff is critical. Account representatives have valuable relationships with energy decision-makers and the key customers and can provide credibility to the program. At the same time, it is important to ensure that accounts staff be aware of contacts with key accounts. The program will employ both incentive reservation and application stages. Prior to undertaking a project, applicants must submit a rebate reservation form that provides all data required to determine the incentive level. The Company or program implementer will perform a desk review of the reservation and verify the incentive. In the case of large projects, the Implementation Contractor may perform a site visit to verify baseline conditions. If approved, the Company will reserve the incentive amount and authorize the customer to undertake the project. Upon completion, the customer will file a rebate application. The application will mirror the reservation, but will require documentation of project costs. As necessary, the rebate level will be recalculated. A fraction of all applications and every application for a rebate over $10,000 will be subject to on-site verification prior to payment.
Exit Strategy	The program will be subject to annual evaluation. If the evaluation shows that the program is not cost-effective as implemented and/or if the Company determines that the program is not performing satisfactorily, the program will be ended. Custom incentive programs tend to reach primarily larger customers and by definition support more complex, multi-measure projects. These programs typically do not have a significant influence on dealer stocking practices and withdrawal of this program should not cause significant market disruption. The Company should be clear in all program marketing activities that it reserves the right to terminate the program. However, given that the sales cycle for such projects can be months long, withdrawal from the market should follow notification of large customers several months prior to formal termination to ensure that projects with key customers are not disrupted.
Marketing Strategy	Direct and network marketing (trade groups, business organizations, etc) rather than mass marketing or advertising will be employed. Targets of the marketing strategy will be both the customer and key trade allies. Account rep visits, direct mail, training presentations, participation in trade shows and trade association events all will be included in the recruiting approach. Outreach and training for trade allies is essential since this group, including energy service companies, will sell most projects. Common to all programs, a clear web presence for the program is important. Business center staff should be trained and provided with program collateral.

Eligible Measures and Incentive Strategy	All cost-effective energy efficiency measures (majority of energy savings must be electricity at the site) in the facilities of eligible customers. The incentive structure can be configured in several ways. The simplest form is a standard offer program that offers a posted price per first year kWh for verified kWh, where verification is based on standard IPMVP approaches. This approach requires post-installation verification (and for large projects may involve pre-installation verification of baseline) to ensure that savings are realized prior to payment of the incentive. Therefore, while simple to administer in terms of the incentive determination, a standard offer approach can be complex in its back-end requirements and it forces customers to wait for payment until verification is complete. The alternative is to structure the incentive based on an application that outlines the proposed energy savings and project costs. The incentive is then structured as a payment per kWh and/or kW set as a fraction of the Company's avoided cost. The financial incentives for cost-effective efficiency measures would be based on the incremental cost (increase in cost from base to the energy efficient option) for technologies that are assumed to be replaced when past their normal useful life in age or are no longer functional. Financial incentives would be based on replacement cost for technologies that are typically replaced when still functional, indicating energy efficiency as a primary motivator for replacement. Incentives would be determined by the outcome of a series of tests. 1. The initial incentive would be set as a fraction of the present value of the stream of avoided costs over the measure life. 2. Apply a project cost cap. The total incentive calculated above is capped at a fraction of project cost – typically 50%. 3. Apply the simple payback cap. The incentive calculated in 1 and 2 above shall not result in a simple payback of less than 2 years. This test is typically applied to minimize free-ridership. The specific payback cap can be adjusted based on market response.
Milestones	February 2008 – Issue RFP for implementation services (jointly with the Prescriptive Incentive Program) April 2008 – Execute implementation contract June 2008 – Complete detailed implementation plan June - September 2008 – Program launch window August 2010 – Go/no-go decision on post-2010 program implementation.

EM&V Requirements	To minimize program costs, anticipated energy savings will be estimated and agreed on for all appropriate projects through a rigorous QA/QC process prior to the offer of an implementation incentive. Program costs will be minimized by estimating anticipated energy savings through a desk review of the calculations provided with the incentive reservation. In the case of projects proposing incentives of greater than $10,000, a site visit will be made to verify baseline conditions. After implementation of the efficiency measures, a post inspection will be used to confirm proper installation and conformance with the measure specification. A statistically significant number of implemented projects will be evaluated to verify gross savings estimates. For those measures where reliable estimates of savings cannot be made prior to implementation, pre and post monitoring may be used to determine savings. The final EM&V specifications will be developed by the implementation contractor and approved by The Company and the Program Evaluator. Because this is an important program and one that targets large customers with non-standard measures it should be targeted for a rigorous evaluation. At this time, it is projected that the independent evaluation will employ on-site assessments of a representative sample of the participant's installation and use conditions to confirm the installation is "as planned and rebated" to identify any differences between expected estimated savings and the as-installed and used conditions. The evaluation will employ to the extent possible post installation metering and verification monitoring of a representative sample of installs, along with the use of on/off-site interviews and purchasing policy reviews to assess net-to-gross adjustment factors to inform future deemed energy savings and NTG values. The use of IPMVP protocols will be applied to selected samples that make up key portions of the gross energy savings projections. It is anticipated that IPMVP option B (Retrofit Isolation) will make up a substantial part of this assessment, however, options A (Partially Measured Retrofit Isolation) or option C (Whole Facility Measurement) will be employed when the other options are inappropriate for the installation or determined to be too expensive. Option D (Calibrated Simulation) may be used if the retrofits are facility related (rather than process related) and when other options are determined to be inappropriate or too expensive. If IPMVP options are determined to be beyond the budget available, engineering reviews of the project worksheets and project information will be performed, linked to on-site verification efforts to confirm the as-installed and used conditions and the baseline assumptions and participant decision approaches. The baseline condition to be applied in the impact analysis will be set at the pre-install condition if the project would not have gone forward without the program, or at the alternative lower-efficiency technologies level if the installation were to have been taken without the program, but installed at lower levels of efficiency. Where the projects are determined to have gone forward at the same level of efficiency without the program, no energy savings will be credited to the program and the savings will be counted as free riders. Process interviews will be conducted with participants, trade allies, program mangers and account reps and coordinated with the impact evaluation results to identify recommendations for program improvements. As with other C&I programs, Custom projects often are sold by trade allies. The process evaluation will focus on the ally sales process, the types of measures installed and the efficiency of the project review conducted by the implementation contractor. Of particular interest will be any interaction between the Custom and Prescriptive programs, as it can be the case that the two types of programs can cannibalize each other if incentives are not properly structured.

Administrative Requirements

Should the Company contract for implementation it will be responsible for developing the RFP or RFQ, implementation contractor selection, review of program policies and procedures and incentive forms, performance monitoring, and approval of large incentive payments. Company Account Managers will market the program to managed accounts (coordination between program implementers and account managers is critical to ensure customer service metrics are met, but the coordination process can be difficult). Company communications/marketing staff will be required for review/approval of program marketing collateral and participation of web staff will be needed for any online content.

The implementation contractor responsibilities include final program design, development of marketing materials, program marketing/recruiting, project management and QA/QC, customer and contractor dispute resolution, tracking, reporting and program goal achievement.

The Company will need to allocate approximately .75 FTE during program start-up (for this program and the C&I Prescriptive Incentive Program combined), with a steady-state requirement of 0.50 FTE for direct program management. Start-up activities will focus on review of policies and procedures and reservation and application forms. In addition, staff will be required to support the integration of Company account management staff into the program. The Company will need to develop a system for tracking key program data (this system will likely serve all programs). Company marketing/customer relations staff will be key participants in program design and approval of marketing strategies and collateral. Participation will be required of the Company's webmaster. Total FTE requirement during the 3-4 month start-up is 1.25 – 1.50 FTE Company-wide.

With respect to rebate fulfillment, an early decision must be made as to whether rebates will be processed by the implementation contractor or the Company. Standard practice uses the implementation contractor, but could require the Company to advance funds for the rebates, or to otherwise develop a process for quickly moving funds to the implementation contractor.

Estimated Participation

Participation will be dependent on the number and size of projects approved.

Estimated Budget

Budget Category	2008	2009	2010	Total
Incentive Costs	$2,626,591	$2,692,256	$2,759,562	$8,078,409
Administrative Costs	$1,575,955	$1,615,354	$1,655,737	$4,847,046
Total	$4,202,546	$4,307,609	$4,415,300	$12,925,455

Savings Targets

Savings	2008	2009	2010	Total
Net-to-Gross Ratio	0.80	0.80	0.80	
MWh Savings	27,099	54,198	81,297	162,594
MW Savings	3.5	7.0	10.6	21.1

Program Metrics

The principal program metrics are the annual energy and demand savings targets, and delivery at or below budgeted cost. Secondary metrics include time-to-approve and time-to-pay, project pipeline and customer complaints/complaint resolution. The Company will monitor cost per kWh saved and cost-effectiveness. Deviations of more than 10% from levels estimated in the final implementation plan will result in formal program review and possible revision.

Cost-effectiveness	Total Resource Cost Test: 2.23 Utility Cost Test: 2.94 Participant Test: 1.86 Rate Impact Measure Test: 1.54

PROGRAM	C&I Prescriptive Incentive
Objective	To acquire energy and demand savings via commercial and industrial customer energy efficiency improvements involving via prescriptive incentives for common measures for which savings are easily deemable. This program will operate in close coordination with the C&I Custom Incentive program. This program will likely be responsible for the majority of C&I savings.
Target Market	Commercial, government, institutional, and industrial customers of all sizes. This market is essentially the same as that targeted by the Custom Incentive program, although it will tend to reach smaller C&I and institutional government customers to a greater extent as these markets tend to pursue simpler, single-measure projects.
Program Duration	Initial program implementation period is three years, commencing in 2008 and ending in 2010. Assumed that the program will continue throughout the planning period.
Program Description	The program will provide rebates for energy-efficient products that are readily available in the marketplace and with savings opportunities for a large number of customers. The program will target measures for which energy savings can be reliably deemed, or calculated using simple threshold criteria. Rebates will be fixed per measure. Examples of measures in the first category are premium efficiency motors, vending machine sensors, and many lighting measures. Variable frequency drives, air compressors, basic refrigeration measures are examples of measures where a simple calculation may be required. In either case, the rebate is pre-set rather than calculated based on the specific project. A principal objective of this program element is to provide an expedited, simple solution for customers interested in purchasing efficient technologies that can produce verifiable savings.
Implementation Strategy	Program management most likely will be provided by a third-party implementer who will be responsible for developing a detailed implementation plan, measure lists and rebate levels, recruiting participants, incentive processing (final fulfillment may be handled by a single entity for all financial assistance programs), and spot verification. The primary delivery channel for Prescriptive Incentive programs generally are trade allies and energy services providers who routinely serve this market. Direct outreach to customers is too expensive and reach is too limited. As such, recruiting will be focused on these allies. The Program will provide basic program collateral (eligible measure lists and rebate levels), and limited sales training focusing on up-selling more efficient equipment. Rebate applications will be downloadable from the Company's web site. Unlike the Custom program, this program will not use a rebate reservation. The relatively simple application will require that proof of purchase/installation be provided as a condition of payment. The program implementation contractor will verify a sample of installations prior to payment. All applications for in excess of $10,000 will be verified prior to payment.
Exit Strategy	More than virtually any other program, the Prescriptive Incentive program is likely, if successful, to have an impact on the mid-stream market. Trade allies (dealers and contractors) will change stocking practices to ensure a supply of efficient equipment. Sudden changes in the Program's structure, or pulling the program entirely can create market disruption and alienate the allies who, in turn, can alienate customers. If the Program is found to be not cost-effective and/or if the Company changes its strategy, it is important to communicate clearly with the ally community and provide sufficient notice of program changes.
Marketing Strategy	Program marketing efforts will primarily target trade allies and the energy services industry for specific market segments (lighting, HVAC, refrigeration, etc). The targeting strategy should be developed or at least tested with ally focus groups. The marketing/recruiting effort will be both direct (personal contact with major distributors/installers/designers) and indirect through local trade associations and trade shows. Customer marketing will entail limited direct marketing via mass mailings, provision of program information through the Company's call center, posting of program information on the Company's web site, and direct contact by Company Account Managers. Program collateral will be relatively simple, consisting of eligible measure lists and rebate levels.

Eligible Measures and Incentive Strategy

This program will work in the same market as the Custom Incentive program and similar programs operated by other utilities have experienced cannibalization of one program by the other depending on the structure of incentives. The levels ultimately should be set such that the Prescriptive program picks up most or all activity associated with basic measures such as lighting, small packaged HVAC, standard refrigeration equipment, commercial food service equipment and motors. The incentive levels listed below are those that yield a two year payback on the measure which should generally equate with an amount equal to 50% of incremental cost. These amounts are averaged over the levels calculated individually for each building type. The actual Total Incentives amount is in the Estimated Budget table.

Rebates will be provided upon review and approval of a rebate application including proof of purchase and installation, including receipts.

Measure	Incentive per Unit
250W PS Metal Halide	$165
50W Metal Halide	$161
1 4' T8 32 watt lamps with electronic ballast and reflector	$36
1 8' T8 59 watt lamps with electronic ballast and reflector	$66
100W Metal Halide	$170
175W PS Metal Halide	$144
180W LPS	$101
2 4' Super T8 28 watt lamps with electronic ballast	$13
2 4' T8 32 watt lamps with electronic ballast	$21
2 4' T8 32 watt lamps with electronic ballast with dimming system	$55
2 4' T8 32 watt lamps with electronic ballast with occupancy sensors	$31
2 8' Super T8 59 watt lamps with electronic ballast	$32
2 8' T8 59 watt lamps with electronic ballast with occupancy sensors	$69
200W HPS	$118
Addition of a LT subcooler to an air-cooled multiplex	$314
Addition of LT and MT subcoolers to an air-cooled multiplex	$454
Chiller Efficiency	$34
Connectionless Steamer, Efficient use = 0.5 kW/hour	$563
Electroluminescent Exit Sign (New)	$81
Electroluminescent Exit Sign Retrofit Kit	$78
Eliminate anti-sweat heaters from doors	$7
Hot Food Holding Cabinet, Efficient use = 0.43 kW/hour	$783
Install automatic door closer on walk-in cooler doors	$325
Install automatic door closer on walk-in freezer doors	$281
Integral CFL, screw-in	$1
LED Exit Sign (new)	$48
LED Exit Sign (retrofit kit)	$35
Modular CFL, pin based	$31
Occupancy sensor - Assume control 3 2-lamp fixtures w/T8 34W EL Ballast	$58

Measure	Incentive per Unit
Packaged Unit Efficiency	$76
Premium Efficiency Motor	$1,879
Replace multiplex air-cooled condenser with evaporative condenser	$385
Scheduled AHU	$623
Substitute high efficiency motors for standard efficiency	$99
Upgrade from 53 Btu/Watt @ 10°F TD to 85 Btu/Watt	$220
Variable CW Pump	$35
Variable HW Pump	$6
VAV	$19

Milestones

February 2008 – Issue RFP for implementation services (jointly with the Custom Incentive Program)

April 2008 – Execute implementation contract

August 2008 – Complete detailed implementation plan

August - November 2008 – Program launch window

August 2010 – Go/no-go decision on post-2010 program implementation.

EM&V Requirements	Deemed savings values will be used for some measures such as lighting, lighting controls, and motors. Verification of measure installation will be made for a statistically significant sample of projects. The evaluation approach will be contingent on the evaluation resources available to the study and the results of an evaluation planning approach that focuses the evaluation resources on the programs with the most savings and highest risk of being inaccurate. This program has less risk of eroded savings estimates (compared to other programs in the portfolio) because of the technologies included and the target market. The evaluation approach for this program will employ a sampling strategy that focuses the evaluation sample to reflect the types of projects recorded in the tracking system. The primary evaluation approach will employ on and off-site verification visits/assessments to confirm the project's as-installed and used conditions that provide the expected savings. Because these are typically well understood projects in which the as-installed-and-used conditions drive the savings analysis, it is expected that few if any IPMVP metering or monitoring assessment will be conducted. However, in some instances for which the evaluation contractor's savings estimates may be determined to be unreliable because of specific participant conditions, focused but limited metering or monitoring or billing analysis approaches may be conducted. The evaluation contractor will report savings as a result of the reviews to the energy savings assumptions and calculations used by the program, compared to the information collected during the evaluation efforts to alter those assumptions and calculations. The evaluation contactor will also assess the previous as-used baseline conditions by reviewing program baseline assumptions and testing the validity of those assumptions via interviews with participants and the findings from the on and off-site verification efforts. Interview with participants will also be conducted to establish the programs net-to-gross factors for use in informing future adjustments to these factors. Because of the prescriptive nature of the program it is expected that survey techniques will be used to acquire much of the participant installation and use conditions and to confirm the operational environments on which savings are based. This approach will also inform the net-to-gross analysis for informing future net-to-gross adjustment metrics. During the on and off-site verification assessment, and with additional representative participant samples the evaluation contractor will investigate the operations and delivery of the programs to develop recommendations for program changes. The process evaluation of this program will focus on trade ally participation and behavior in marketing the program, on the mix of technologies installed under the program. It can often be the case in the early implementation of such programs that only a few dominant allies participate, mostly in lighting. The process evaluation will attempt to identify any such issues early and identify options for boosting ally participation and installation of multiple measures.

Administrative Requirements

Should the Company contract for implementation it will be responsible for developing the RFP or RFQ, implementation contractor selection, review of program policies and procedures and incentive forms, performance monitoring, and approval of large incentive payments. Company Account Managers will make managed accounts aware of the program, but will tend to actively market this program less than would be expected for the Custom program. Company communications/marketing staff will be required for review/approval of program marketing collateral and participation of web staff will be needed for any online content.

The implementation contractor responsibilities include final program design, development of marketing materials, program marketing/recruiting of allies, project management and QA/QC, customer and contractor dispute resolution, tracking, reporting and program goal achievement.

The Company will need to allocate approximately .75 FTE during program start-up (for this program and the C&I Custom Incentive Program combined), with a steady-state requirement of 0.50 FTE for direct program management (combined with the Custom Program). Start-up activities will focus on review of policies and procedures and reservation and application forms. In addition, staff will be required to support the integration of Company account management staff into the program. The Company will need to develop a system for tracking key program data (this system will likely serve all programs). Company marketing/customer relations staff will be key participants in program design and approval of marketing strategies and collateral. Participation will be required of the Company's webmaster. Total FTE requirement during the 3-4 month start-up is 1.25 – 1.50 FTE Company-wide for the two programs combined.

With respect to rebate fulfillment, an early decision must be made as to whether rebates will be processed by the implementation contractor or the Company. Standard practice uses the implementation contractor, but could require the Company to advance funds for the rebates, or to otherwise develop a process for quickly moving funds to the implementation contractor.

Estimated Budget

Budget Category	2008	2009	2010	Total
Incentive Costs	$3,044,238	$4,035,325	$5,200,031	$12,279,594
Administrative Costs	$1,826,543	$2,421,195	$3,120,019	$7,367,757
Total	$4,870,781	$6,456,520	$8,320,050	$19,647,351

Savings Targets

Savings per Unit:

Measure	Unit	kWh/Unit	kW/Unit
250W PS Metal Halide	1 lamp	652	0.00
50W Metal Halide	1 lamp	533	0.09
1 4' T8 32 watt lamps with electronic ballast and reflector	4 ft. 2 lamp fixture	208	0.04
1 8' T8 59 watt lamps with electronic ballast and reflector	8 ft. 2 lamp fixture	293	0.05
100W Metal Halide	1 lamp	400	0.07
175W PS Metal Halide	1 lamp	769	0.00
180W LPS	1 lamp	902	0.00
2 4' Super T8 28 watt lamps with electronic ballast	4 ft. 2 lamp fixture	91	0.02
2 4' T8 32 watt lamps with electronic ballast	4 ft. 2 lamp fixture	75	0.01
2 4' T8 32 watt lamps with electronic ballast with dimming system	4 ft. 2 lamp fixture	152	0.03
2 4' T8 32 watt lamps with electronic ballast with occupancy sensors	4 ft. 2 lamp fixture	136	0.02
2 8' Super T8 59 watt lamps with electronic ballast	8 ft. 2 lamp fixture	96	0.02
2 8' T8 59 watt lamps with electronic ballast with occupancy sensors	8 ft. 2 lamp fixture	191	0.03
200W HPS	1 lamp	820	0.00
Addition of a LT subcooler to an air-cooled multiplex	tons served	1,835	0.58
Addition of LT and MT subcoolers to an air-cooled multiplex	tons served	1,119	0.33
Chiller Efficiency	tons served	164	0.06
Connectionless Steamer, Efficient use = 0.5 kW/hour	1 steamer	2,190	0.50
Electroluminescent Exit Sign (New)	1 sign	381	0.05
Electroluminescent Exit Sign Retrofit Kit	1 sign	381	0.05
Eliminate anti-sweat heaters from doors	Per door	393	0.15
Hot Food Holding Cabinet, Efficient use = 0.43 kW/hour	1 cabinet	4,030	0.92
Install automatic door closer on walk-in cooler doors	Per cooler	1,138	0.16
Install automatic door closer on walk-in freezer doors	Per freezer	2,919	0.81
Integral CFL, screw-in	1 compact lamp	253	0.05
LED Exit Sign (new)	1 sign	351	0.04
LED Exit Sign (retrofit kit)	1 sign	351	0.04
Modular CFL, pin based	1 compact lamp	253	0.05
Occupancy sensor - Assume control 3 2-lamp fixtures w/T8 34W EL Ballast	1 wall box	214	0.18

Measure	Unit	kWh/Unit	kW/Unit
Packaged Unit Efficiency	tons served	431	0.19
Premium Efficiency Motor	1 motor	6,798	1.42
Replace multiplex air-cooled condenser with evaporative condenser	tons served	2,172	0.93
Scheduled AHU	1 building	21,672	0.06
Substitute high efficiency motors for standard efficiency	1 motor	460	0.07
Upgrade from 53 Btu/Watt @ 10°F TD to 85 Btu/Watt	tons served	1,341	0.28
Variable CW Pump	1000 sq ft	310	0.03
Variable HW Pump	1000 sq ft	179	0.00
VAV	1000 sq ft	1,993	0.14

Total Savings:

Savings	2008	2009	2010	Total
Net-to-Gross Ratio	0.80	0.80	0.80	
MWh Savings	32,470	68,985	109,738	211,192
MW Savings	4.8	10.5	16.6	31.9

Program Metrics

The principal program metrics are the annual energy and demand savings targets, and delivery at or below budgeted cost. Secondary metrics include time-to-approve and time-to-pay, and customer complaints/complaint resolution. The Company will monitor cost per kWh saved and cost-effectiveness. Deviations of more than 10% from levels estimated in the final implementation plan will result in formal program review and possible revision. Because this program does not include a reservation stage, it is not possible to monitor the project pipeline; the Company likely will have only anecdotal information regarding anticipated rebate levels.

Cost-effectiveness

Total Resource Cost Test: 1.89
Utility Cost Test: 2.44
Participant Test: 2.10
Rate Impact Measure Test: 1.54

PROGRAM	C&I Retro-Commissioning (RCx)
Objective	Improve the performance of energy-using equipment in existing buildings by focusing on optimizing mechanical equipment and related controls.
Target Market	Large commercial building owners and managers; companies managing portfolios of buildings.
Program Duration	This program would begin in 2008 and extend through the planning horizon.
Program Description	This program is intended to help building owners and managers determine the energy performance of buildings, to identify major opportunities for improving that performance through re-optimization of existing systems and replacement of under-performing equipment, and to provide financial support in some cases for taking recommended actions. To ensure savings persistence, program process involves establishment of a tracking system in the post-implementation M&V stage. The program would provide several related sets of services including initial qualification based on benchmarking or quick facility assessments, more detailed facility assessments intended to identify opportunities for systems improvements, development of a retro-commissioning plan, training, direct installation of low-cost measures and verification of plan implementation and incentive fulfillment.

Implementation Strategy	The program can be administered and implemented by the Company, although typically an implementation contractor will be retained to recruit customers and deliver program services. Implementation will involve the following steps: (1) Program set-up: (a) preparation of a final program implementation plan; (b) design and production of program forms; (c) development of program protocols for recruiting, customer interaction, RCx and benchmarking implementation, and incentive fulfillment and tracking; (d) development of a list of approved retro-commissioning contractors, (e) tracking system development; and (f) development of marketing and training materials. (2) Customer recruiting: Buildings are operated according to function and recruiting efforts tend to work best when targeted at specific segments of the commercial buildings market (e.g. health care, schools, commercial leased space, etc). The final implementation would be expected to identify priority targets. These targets should be those that have ENERGY STAR benchmarks to enable quick opportunity screening. A key element of the recruiting function, is recruitment of RCx contractors. In markets that have seen relatively little retro-commissioning activity there likely will be relatively few qualified RCx contractors, and one key to program success will be recruiting and training contractors on proper RCx procedures. (3) Facility Benchmarking and Assessment serves as the entry point for the customer relationship and the foundation for subsequent RCx activity. Ideally, Ameren can provide automated benchmarking to enable rapid screening of buildings. If not, the implementation will gather 12 months of customer energy usage data as well as other basic facility information and calculate an initial building score using the EPA's Portfolio Manager benchmarking tool. If the building scores below a certain level (to be determined in the final implementation plan), program staff will perform a site visit to gather information regarding the state of existing equipment and identify direct install opportunities, and will prepare a brief report for the customer suggesting the efficiency opportunities likely available through RCx. Customers will have the option of implementing only the direct install measures, or undertaking further energy reduction commitments through broader retro-commissioning. (4) Retro-Commissioning: If a customer elects to proceed with RCx, the customer may choose an RCx contractor from the Program's approved list of RCx contractors or select its own contractor The customer will be asked to sign a participation agreement committing to a cost-share of the RCx study, and to continuing to benchmark energy usage for a period of at least two years. Within two weeks of the facility assessment, the RCx contractor will prepare an energy assessment opportunity report for the customer's review. The contractor will work with the customer to complete an RCx reservation form indicating which energy saving opportunities will be implemented and the estimated incentive payment. If the customer wishes to implement measures eligible for other AmerenUE incentive programs, those leads will be referred to the appropriate program manager. (5) Incentive fulfillment will occur along the following paths: • Direct installation: After direct install opportunities identified during the benchmarking site visit are approved by the customer, the program contractor or the Company will either arrange direct installation with qualified contractors or provide the customer with a rebate covering the full incremental measure cost based on proof of performance. • RCx incentives: RCx study incentives will be paid directly to the RCx contractor subject to the customer signing the participation agreement committing to the cost-share. The RCx contractor must verify the measures have been implemented and furnish proof of performance in order for the RCx incentive to be paid. (6) Tracking and verification activities proceed throughout the program life-cycle. Thirty to fifty percent of direct install projects will be inspected based on experience suggesting a need for higher levels of verification for low-cost measures. All projects with incentives of $20,000 or more will be site-verified prior to incentive payment. Roughly 10% of all other projects will be site-verified. As noted, all RCx measures must be certified by the RCx contractor.

Exit Strategy	This program likely will be re-evaluated as part of the Company's next IRP filing and if it remains in the portfolio, an exit strategy will be developed at that time. Generally, however, RCx programs are intended to foster the development of an RCx industry within a utility's service territory that can continue to sell RCx work even in the absence of incentives. Early withdrawal from the market (prior to there being a viable local industry) will less disrupt the market than significantly slow the market transformation effort.
Marketing Strategy	The program will use three marketing channels. First, based on the sectors targeted, the program will work through appropriate local and regional associations (associations of facility engineers, local BOMA chapters, etc) to advertise the availability of the program. Direct mailings, presentations at local events and meetings and newsletter articles will be used. Second, the Program will use direct mailings to key accounts. Third, the Program will contact RCx contractors to arrange individual meet-and-train sessions wherein program guidelines and incentive structures will be addressed. The contractors will incorporate the program information in sales presentations to prospective clients in much the same way that we expect the Prescriptive and Custom Incentive programs to be marketed.
Eligible Measures and Incentive Strategy	

Measure	Incentive per Unit
Adds an 85°F holdback valve, active only when needed	$10
Air-cooled multiplex system w/extensive refrigeration equipment maintenance, normal setpoints	$12
Ambient following SCT setpoint, 70°F minimum	$13
Ambient following SCT setpoint, 70°F minimum, variable-spd condenser fan	$289
Cleaned Coil	$15
Cycle fan off with thermostat; duty cycle occasionally when off	$109
Extensive refrigeration equipment maintenance	$9
Floating SCT controlled to 70°F	$7
Floating SST control on LT and MT suction groups	$18
Optimized OA	$20
Reduce design SCT by ~5°F and improve efficiency	$157
Scheduled AHU	$2,315
Turn off fixture lights when store closed, between 12am and 6am	$2
Wetbulb following SCT setpoint, 70°F minimum	$12
Wetbulb following SCT setpoint, 70°F minimum, variable-spd condenser fan	$129

Milestones	February 2008 – Issue RFP for implementation services April 2008 – Execute implementation contract June 2008 – Complete detailed implementation plan June – September 2008 – Program launch window August 2010 – Go/no-go decision on post-2010 program implementation.

EM&V Requirements	The evaluation approach will use a representative sampling five phase approach to estimate net savings impacts. The phases are: 1. The evaluation contractor will review the assessment reports and the associated calculations for errors and omissions or unsubstantiated or suspect assumptions. When the evaluation contractor identifies items in which corrective calculations are needed, these will be conducted by the evaluation contractor and the estimates or the range of estimated savings will be revised. 2. The evaluation contractor will review the baseline conditions noted in the assessment reports and conduct an on-site inspection after the installation of the measures are completed to confirm the pre-program baseline operations conditions. This activity will involve confirmation of pre-change, pre-existing building equipment, equipment conditions, operating logs, also typically involving discussions with participants to confirm the baseline conditions. Because this inspection would be best achieved as a pre-program/pre-change inspection, where possible and when coordination can be achieved, the evaluation contractor will visit the facility during the assessment phase to confirm the baseline conditions. However, the evaluation community knows that this is not always possible unless the evaluation contactors are brought into the process during the enrollment and early program efforts. The evaluation contractor will coordinate with the implementation contractor to make this happen to the extent possible. During this phase the evaluation contractor will also conduct a net-to-gross assessment to identify the measures and actions that the participant had already planned to take without the program. This assessment will include an approach for estimating taking actions earlier than what would have occurred without the program to inform the net to gross ratio estimation process. 3. The evaluation contractor will also conduct a post-installation inspection to confirm that the operational or equipment condition changes have been implemented in accordance with the assessment plan and that the operational environment is such that the savings are being achieved. In some cases this will require examinations of ancillary systems to confirm that the savings achieved on one system have not been shifted to other systems in the form of increased consumption. When this condition is found, the evaluation contractor will reduce the savings projected to account for the increase in consumption for the ancillary systems. Where possible and within budget, on-site measurement will be taken when those measurements can help reduce the risk of estimation error. However, due to the budget we do not envision the installation of metering or measurement equipment to capture on-going use conditions, nor do we envision the use of long term IPMVP metering or monitoring measurements. 4. In the fourth phase of the effort, the evaluation contractor will conduct on or off-site verification assessments to confirm that the measures and the savings are persisting. This will involve examinations of the operational environment to confirm the presence of the measure and the usage conditions. In some cases, to save costs, these examinations can be conducted via telephone interviews with the building's operations managers or maintenance staff. It is anticipated that these assessments will occur not earlier than 4 months after installation, but no later than one year after installation. 5. In the fifth and final phase of the evaluation the contractor will develop their site-specific ex post net energy impact assessments using the information collected in each of the previous phases. The information from the site-specific assessment will be used to develop a program evaluation report using project weighting and sample application strategies so that the sampled site-specific results are used to estimate program level savings. The process evaluation will focus on the efficacy of the entire process, since RCx programs involve a number of moving parts that must function well in sequence of the program is to be a success. In addition, the process evaluation will examine the effectiveness of targeting and marketing strategies, since it is typically the case that RCx projects have greater appeal for certain market segments.

Administrative Requirements	Should the Company contract for implementation it will be responsible for developing the RFP or RFQ, implementation contractor selection, review of program policies and procedures and incentive forms, performance monitoring, and approval of large incentive payments. Company Account Managers will market the program to managed accounts. Company communications/marketing staff will be required for review/approval of program marketing collateral and participation of web staff will be needed for any online content. In addition, the efficiency of the program depends in part on the ability of the Company to enable automated benchmarking which involves the electronic transfer of customer billing data into a benchmarking tool. While not essential to program success, automated benchmarking can greatly speed the lead generation and qualification process. Several utilities including PG&E and Seattle City Light are proceeding with tests of electronic transfer that appear promising. The implementation contractor responsibilities include final program design, development of marketing materials, program marketing/recruiting, project management and QA/QC, customer and contractor dispute resolution, tracking, reporting and program goal achievement. The Company will need to allocate approximately .50 FTE during program start-up for this program alone, with a steady-state requirement of 0.25 FTE for direct program management. Start-up activities will focus on review of policies and procedures and reservation and application forms. In addition, staff will be required to support the integration of Company account management staff into the program. The Company will need to develop a system for tracking key program data (this system will likely serve all programs). Participation will be required of the Company's webmaster. Total FTE requirement during the 3-4 month start-up is .75 – 1.0 FTE Company-wide. The volume of rebates tends to be much lower for RCx than for measure-based incentive programs. Rebate fulfillment could be managed by either the implementation contractor or the Company.

Estimated Participation

Measure Installations	2008	2009	2010
Adds an 85°F holdback valve, active only when needed	10	11	12
Air-cooled multiplex system w/extensive refrigeration equipment maintenance, normal setpoints	126	135	145
Ambient following SCT setpoint, 70°F minimum	35	38	40
Ambient following SCT setpoint, 70°F minimum, variable-spd condenser fan	22	24	26
Cleaned Coil	10,218	10,978	11,787
Cycle fan off with thermostat; duty cycle occasionally when off	11	11	12
Extensive refrigeration equipment maintenance	400	430	461
Floating SCT controlled to 70°F	94	100	108
Floating SST control on LT and MT suction groups	30	32	35
Optimized OA	1,259	1,353	1,452
Reduce design SCT by ~5°F and improve efficiency	32	35	37
Scheduled AHU	53	57	61
Turn off fixture lights when store closed, between 12am and 6am	251	269	289
Wetbulb following SCT setpoint, 70°F minimum	45	48	52
Wetbulb following SCT setpoint, 70°F minimum, variable-spd condenser fan	30	33	35

Estimated Budget

Budget Category	2008	2009	2010	Total
Incentive Costs	$351,444	$387,010	$425,913	$1,164,367
Administrative Costs	$210,867	$232,206	$255,548	$698,620
Total	$562,311	$619,216	$681,460	$1,862,987

Savings Targets

Savings per Unit:

Measure	Unit	kWh/Unit	kW/Unit
Adds an 85°F holdback valve, active only when needed	1000 sq ft	42	-0.01
Air-cooled multiplex system w/extensive refrigeration equipment maintenance, normal setpoints	tons served	753	0.10
Ambient following SCT setpoint, 70°F minimum	tons served	935	0.01
Ambient following SCT setpoint, 70°F minimum, variable-spd condenser fan	tons served	1,263	0.01
Cleaned Coil	tons served	473	0.17
Cycle fan off with thermostat; duty cycle occasionally when off	1 motor	613	0.09
Extensive refrigeration equipment maintenance	tons served	552	0.05
Floating SCT controlled to 70°F	tons served	1,189	0.00
Floating SST control on LT and MT suction groups	tons served	417	0.11
Optimized OA	1000 sq ft	89	0.06
Reduce design SCT by ~5°F and improve efficiency	tons served	1,897	0.19
Scheduled AHU	1 building	141,585	-1.77
Turn off fixture lights when store closed, between 12am and 6am	fixture linear feet	72	0.00
Wetbulb following SCT setpoint, 70°F minimum	tons served	1,689	0.07
Wetbulb following SCT setpoint, 70°F minimum, variable-spd condenser fan	tons served	1,758	0.08

Total Savings

Savings	2008	2009	2010	Total
Net-to-Gross Ratio	0.80	0.80	0.80	
MWh Savings	11,573	24,007	37,357	72,937
MW Savings	1.4	2.8	4.4	8.7

Program Metrics

The principal program metrics are the annual energy and demand savings targets, and delivery at or below budgeted cost. Secondary metrics include square feet in the pipeline, number of buildings benchmarked, cost per square foot and kWh/kW per square foot. Time-to-approve and time-to-pay, and customer complaints/complaint resolution are important metrics for implementation contractors.

Cost-effectiveness	Total Resource Cost Test: 3.17 Utility Cost Test: 6.78 Participant Test: 2.74 Rate Impact Measure Test: 1.58

PROGRAM	Commercial New Construction
Objective	The goal of this program is to capture energy efficiency opportunities which are available during the design and construction of new buildings, major renovations and tenant build-outs in the non-residential market that are being built to meet LEED certification.
Target Market	Any commercial, industrial, government, or institutional new construction, major renovation or tenant build-out project in the planning or design stage and that is being designed and built to meet LEED certification.
Program Duration	The program will launch in 2008 and is assumed to continue throughout the planning horizon.

Program Description	The New Construction Program will promote energy efficiency through a comprehensive effort to influence building design practices. To secure these opportunities it is necessary to overcome barriers such as resistance in the design community to adopt new ideas, increased first cost for efficient options and tendency to design for worst-case conditions rather than efficiency over the range of expected operating conditions. The program will endeavor to overcome these and other barriers through education and outreach to building owners, design professionals, building contractors and other trade allies to introduce efficiency concepts, design facilitation, technical assistance, support for the LEED rating system, and incentives for efficient designs and measure implementation. The Company has participated in the Ameren/USGBC – St. Louis Chapter LEED Incentive Grant Program that has provided grants of up to $30,000 for projects designed and built to LEED standards (the size of the project grants has been linked to the level of LEED certification). Under this new program, the LEED certification grant will be retained, but expanded to include additional training and technical assistance and actual measure incentives. The program will work with building owners/managers, design professionals, trade allies, contractors and the USGBC – St. Louis Regional Chapter to design and construct high performance buildings that provide improved energy efficiency, strong environmental performance, systems performance and comfort. This will be accomplished through an integrated design process that results in improved efficiency in the building envelope, lighting, HVAC and other energy and resource consuming systems. At this stage in the program design process the program is envisioned as having two tracks. The first retains the features of the original LEED Incentive Grant Program. The initial design grant for LEED-designed buildings and the post-certification grants will continue to be available. The second track incorporates a more focused approach to specific energy efficiency improvements and itself includes two tracks. 1. Systems track – technical assistance and incentives are provided for construction that incorporates efficient systems (lighting, daylighting, HVAC, etc). This track could be based on an approach such as the Advanced Buildings concept developed by the New Buildings Institute. Advanced Buildings is a suite of design manuals, performance guidelines and training designed to increase market place knowledge and improve design and construction practices. 2. Comprehensive or whole building track – technical assistance and incentives are provided for buildings constructed based on whole-building energy simulation and achievement of whole-building performance targets. A key element for success in a new construction program is securing the involvement of the professional design community. This will be a major activity in both program approaches. The program will employ targeted marketing, training and education offerings, lunch and learn presentations, individual contact and outreach through professional organizations to engage design professionals. The program will also offer design and implementation incentives to encourage program participation. To encourage participation of the design community and to offset the costs of considering multiple design options a multi-tier incentive will be offered to the project design teams. The LEED grants are intended to provide an incentive to invest additional design resources. An implementation incentive based on the incremental costs of the efficiency measures will be offered to the building owner to help overcome the first cost barrier.

Implementation Strategy	The Company will retain a third party implementation contractor to directly administer the program, including providing technical assistance, recruiting, reviewing and approving applications, monitoring performance and verifying project completion consistent with the incentive application. The key implementation steps include: o Recruiting new projects through outreach to the design and developer community. The USGBC – St. Louis Regional Chapter will be a key ally in recruiting, and key activities include presentations at local conferences/workshops, one-on-one-contacts with designers and developers and marketing by AmerenUE account managers to large customers. o Project application. Although preferred, prospective participants need not enter the program through the LEED track, but can apply strictly for energy efficiency incentives. Applications will describe the proposed project and efficiency/resource conservation objectives. o Application routing and approval. Depending on the nature of the application it will routed through the LEED grant process for the design grant. Applications will be accepted on a first come – first served basis, taking into account the level of proposed energy savings, and the level of implied incentives. o Design assistance. The implementation contractor will provide design assistance on a selective basis. The assistance will involve principally energy simulation. o Incentive commitment. As projects complete the design stage, a formal application for reservation of incentives will be required. Once approved, the Program is committing to pay system- or whole-building incentives if the project is completed as designed. o Verification. Upon completion of the building, proposed measures or performance will be verified by the implementation contractor. o Payment. Either the implementation contractor or the Company will pay incentives per the reservation.
Exit Strategy	Commercial new construction programs inherently have a long project cycle time and it often can take several years (depending particularly on market conditions) to reach a level of significant activity. Therefore, a program such as the one proposed here cannot quickly be ramped up or down. Once project incentives are committed it can take well over a year for projects to be completed. In addition, one clear purpose of this program is to have a lasting impact on design and construction practices. Quick withdrawal from the market can confuse the design community and will likely not result in a significant portion of the community adopting green building and energy efficiency design practices. Fortunately, the St. Louis market appears already to have a fairly robust green design community; therefore, the market impacts of a program shut-down will have less impact on green design standards.
Marketing Strategy	The program will be marketed to building owners and managers and to design professionals, trade allies and contractors. The marketing to building owners and managers will stress the energy and non-energy benefits of a high performance building. This will be accomplished through media events for successful projects including grand openings and open houses, case studies, direct marketing, trade shows, and Company Account Manager contact. The marketing to the design professionals, trade allies and contractors will be targeted at securing involvement in projects early in the design phase. It will stress the value that bringing their customers a better building can have for their business. Targeted direct marketing, case studies, trade publications, trade shows, formal and informal presentations, and direct contact will all be employed. Construction reports will also be used to identify potential projects. As noted, the St. Louis chapter of the USGBC is expected to be a key marketing/recruiting partner.

Eligible Measures and Incentive Strategy	<table><tr><th>Measure</th><th>Incentive per Unit</th></tr><tr><td>New Construction Building - with upgrades</td><td>$31,628</td></tr></table>
Milestones	February 2008 – Issue RFP for implementation services April 2008 – Execute implementation contract June 2008 – Complete detailed implementation plan June – November 2008 – Program soft launch November 2008 – February 2009 – Program launch window August 2010 – Go/no-go decision on post-2010 program implementation.

EM&V Requirements	For projects using the Advanced Buildings process the estimated energy savings generated will be based on the whole-building pattern specifications adopted during the design process. For projects using the comprehensive process the energy savings will be estimated during the modeling done as part of the technical assistance. The evaluation approach will be contingent on the evaluation resources available to the study and the results of an evaluation planning approach that focuses the evaluation resources on the programs with the most savings and highest risk of being inaccurate. Because this is a new construction services program, the baseline condition for the purpose of estimating energy savings will be embedded within a two-stage process. The first stage will be to identify the energy efficiency levels associated with the applicable building codes that govern the participant's project. The second stage will be to identify the way in which the project would have been completed in the absence of the program. The evaluation will employ a sampling strategy to conduct the evaluation and not target all projects. The sampling approach will use stratified sampling to sample different types of buildings and building projects consistent with the types of projects completed via the program. Some building projects employ above code conditions without energy efficiency programs. As a result, the baseline must include both a code assessment stage linked to a second stage assessment of the as-would-have-been-built-conditions without the program. The baseline code conditions will be set as the stage one baseline, then that baseline will be adjusted to reflect the as-would-have-been-built-conditions without the program. The as-would-have-been-built-conditions will be established via interviews with the designers, architects, engineers and project allies used to specify and complete the project. The as-would-have-been-built-conditions will be modeled to estimate the consumption of the building associated with the as-would-have-been-built-conditions. The evaluation will then identify the as-built-conditions that were influenced by the program to model the energy consumption of the building under the as-built-conditions. The evaluation contractor will employ on-site confirmation / verification inspections to identify the as-built-conditions and to asses if the as-built-conditions are being used consistent with the assumptions made by the program to adjust the post construction modeling efforts to reflect as used conditions. These comparisons will be used to estimate the energy impacts of the building as built. The evaluation contractor will also provide feedback to the program team regarding the difference between the program-expected conditions and savings and the as built and operated conditions and savings to help improve the program's energy savings projection approach. During the interview with the key partners and allies and through interviews and program records reviews the evaluation team will assess the operations of the program and provide recommendations for program changes. Ultimately, the goal of this of this program is to effect a basic change in the behavior of the building development and design community in favor of energy efficiency. The process evaluation, therefore, will focus on the nature of the program's interaction with these market actors and, in particular, the effectiveness of various program services and incentives in bringing architects and developers into the program.
Administrative Requirements	The Company will be responsible for developing the RFQ or RFP, implementation contractor selection and performance monitoring, and incentive payments. Commercial new construction projects are perhaps the most complex programs to design and manage and will require a relatively higher level of Company involvement, at least during design. Depending on the level of involvement that the Company chooses to have with program design, the start-up requirement will range between .75 and 1 FTE. Steady-state staffing requirements will be in the range of .5 FTE. The resources required from other corporate elements will be relatively low, although account managers will play a key role initially in helping identify projects.

Estimated Participation

Measure Installations	2008	2009	2010
New Construction Building - with upgrades	13	13	13

Estimated Budget

Budget Category	2008	2009	2010	Total
Incentive Costs	$416,065	$426,466	$437,128	$1,279,659
Administrative Costs	$249,639	$255,880	$262,277	$767,795
Total	$665,703	$682,346	$699,405	$2,047,454

Savings Targets

Savings per Unit:

Measure	Unit	kWh/Unit	kW/Unit
New Construction Building - with upgrades	1 building	79,569	25.52

Total Savings:

Savings	2008	2009	2010	Total
Net-to-Gross Ratio	0.80	0.80	0.80	
MWh Savings	817	1,634	2,451	4,902
MW Savings	0.3	0.5	0.8	1.6

Program Metrics

The primary metrics are the energy and demand savings. However, given the nature of commercial new construction programs, project cycle time (time from initial contact to project completion), project completion rate (ratio of completed projects to initial contacts) and cost per project (including incentive and technical assistance costs) are very important gauges of program performance. A new construction program will tend to be among the most expensive programs per unity of energy saved if extensive technical assistance is provided, and if costs are rising relative to other programs, it could be necessary to scale-back the assistance offered or to scale back the incentive levels.

Cost-effectiveness

Total Resource Cost Test: 1.14
Utility Cost Test: 1.35
Participant Test: 1.41
Rate Impact Measure Test: 0.95

PROGRAM	Commercial Demand Response – Critical Peak Pricing w/ Smart Technology
Objective	This program is intended to offer small to medium commercial customers an opportunity to curtail load voluntarily in response to a critical peak pricing tariff, but with the assistance of a control regime that can be programmed to respond to the pricing structure. Based on initial pilot implementation, the program is expected to yield an approximately 10 percent reduction in demand. The maximum demand reduction over the three-year initial implementation period is expected to be 2 MW. It is unlikely that the Company will implement both a CPP with Smart Technology and a CPP-only program given that the markets overlap almost entirely. The Company will continue to evaluate its options and will propose the most cost-effective option for implementation.
Target Market	Small to medium commercial customers.
Program Duration	This program is assumed to begin in 2009. The program is assumed to continue throughout the planning period.
Program Description	This program combines a critical peak pricing tariff with a customer control architecture that enables customers to select control regimes in response to prices and/or enables the Company to control devices based on customers' specified control regimes. The specific technology employed may be similar to that used for the Company's pilot residential CPP program, or a more sophisticated system offered by demand response vendors. Customers enroll in a CPP tariff. The Company or its contractor provides for installation of the customer control equipment at no cost to the customer. Depending on the nature of the system, the customer will then set an equipment control regime based on the tariff's pricing periods. Again, depending on the specific structure of the system, during summer critical peak periods, the Company will activate control of specific equipment with limited customer override options. The Company benefits through reduced peak power purchases and increased electric system reliability. Customers can benefit by shifting use from on-peak and critical peak periods to off and mid-peak periods; however they do not receive an additional incentive beyond whatever equipment is provided.
Eligible Measures	NA
Implementation Strategy	The Company will develop CPP tariff that reflects the characteristics of the program design. An implementation contractor would be used to recruit customers and install the required equipment and software. Depending on the system and vendor chosen, there may or may not be a cost to the costumer. Given the program's ambitious goals and the uncertainties associated with participation, the contractor would be paid based on installed customers. Customers would be required to enroll in the program for a minimum of one cooling season, the Company would implement the tariff and billing change. CPP events are triggered by temperature; there are a maximum number of events per year and with a maximum number of hours per event. Customers receive an automated phone call or email 24 hours prior to an event, notifying them that the higher CPP rate will apply during the critical peak period and their nominated equipment will be subject to utility control. During the event, the nominated equipment will be controlled by the Company. In the case of an air conditioner, the control will automatically increase the temperature to a pre-determined level. The thermostats can be set to multiple levels, depending on the temperature change and the number of hours. Customers will be able to override the control regime by either placing a phone call to the implementation contractor or Company's Call Center or by using a program website. Overriding will not entail a penalty other than the customer being charged the CPP.

<table>
<tr><td>Exit Strategy</td><td>The complexity of an exit depends on the specific system installed. A program modeled after the Company's CPP with Smart Thermostat pilot primarily would affect end use customers and there is relatively little broader market impact. Withdrawal of the program would impact only those customers who would be shifted back to standard tariffs, and such a shift can occur relatively quickly with several months notice to customers. A decision to exit the market would be based primarily on participation, attrition rate and impact. If the program does not show the expected ramp-up in participation over a several-year period, if program churn rates are high, or if participants are not showing the expected reductions, the Company may reconsider this program. A program termination in the case of a more complex vendor-supplied system could be more difficult, as some vendors will require multi-year contracts as a way to amortize their program costs and manage risk.</td></tr>
<tr><td>Marketing Strategy</td><td>The value proposition can be difficult to convey for the mass market, since no direct incentive is involved. However, the provision of the smart technology will carry significant value for the customer segment that seeks more control over their energy expenditures and is relatively technologically savvy. Nevertheless, program targeting and messaging are critical given the demand reduction target. The Company first will identify high summer usage customers based on billing records and then net out customers already on the Company's direct load control program. An implementation contractor will be provided with the initial contact list and will use direct mail and phone solicitation targeted at these customers. The Company will provide limited print and radio ads to raise the general awareness of the program. The program should also be co-marketed with the efficiency programs aimed at central HVAC systems. Straightforward program information, including a bill calculator will be included on the Company's website.</td></tr>
<tr><td>Incentive Strategy</td><td><table><tr><th>Measure</th><th>Incentive Levels per Unit</th></tr><tr><td>Smart thermostat equipment</td><td>$150 value</td></tr><tr><td>Smart thermostat installation</td><td>$100 value</td></tr></table></td></tr>
<tr><td>Milestones</td><td>February 2008 – Issue RFP for implementation services
April 2008 – Execute implementation contract
July 2008 – Complete detailed implementation plan
July – November 2008 – Program soft launch
November 2008 – March 2009 – Program launch window
August 2010 – Go/no-go decision on post-2010 program implementation.</td></tr>
</table>

EM&V Requirements

The key EM&V issue is the verification of load reduction, both in terms of the reduction per control point as well as the signal success rate which affects the average reduction across control points.

Components of the program evaluation are planned to include:

- Review of existing application and tracking forms, and recommending changes on a go-forward basis, if needed.
- Review load research and engineering studies and/or other supporting documentation in order to verify the consistency of the load reduction estimates with other available information.
- Review and comment on the on-site forms to be used by program implementers for verification that equipment is installed and operable.
- Review of on-site verification results.

The Company collects usage and billing data using CellNet's automatic meter reading (AMR) system. These same data can then used for evaluation purposes.

Process evaluation tends to be relatively less important for standard load management programs. However, two key process metrics to be tracked are the ratio of customers acquired to customers recruited, and customer churn rate, as both metrics can significantly affect the cost of the program.

Administrative Requirements

Program administration will involve selection and supervision of an implementation contractor, oversight marketing activities, program management/tracking and notification of curtailment events. The program requires few staff resources for either ramp-up or ongoing management (.25 FTE) except insofar as substantial marketing support will be required.

Estimated Participation

Measure Installations	2008	2009	2010
Critical peak pricing - CPP events with smart thermostat	0	0	724

Estimated Budget

Budget Category	2008	2009	2010	Total
Incentive Costs	$0	$0	$390,102	$390,102
Administrative Costs	$0	$0	$97,526	$97,526
Total	$0	$0	$487,628	$487,628

Savings Targets	Savings per Unit: For commercial customers, savings are estimated at 10% of summer peak demand. *Total Savings:* See table below
Program Metrics	In addition to the primary metric of peak load reduction, the program should be monitored with respect to average demand reduction per participant, program attrition rate and customer acquisition cost. The attrition rate will greatly affect acquisition cost.
Cost-effectiveness	Total Resource Cost Test: 1.60 Utility Cost Test: 1.51 Participant Test: 1.19 Rate Impact Measure Test: 1.40

Savings	2008	2009	2010	Total
Net-to-Gross Ratio	0.95	0.95	0.95	
MWh Savings	0	0	178	178
MW Savings	0.0	0.0	2.0	2.0

PROGRAM	Commercial and Industrial Demand Credit
Objective	Acquire 40 MW of peak load reduction through enrollment of industrial and large commercial customers in the Commercial and Industrial Demand Credit Program.
Target Market	Large commercial and industrial facilities with peak demand reduction capabilities of 50 kW or greater at a single premise and an interval meter will be eligible to participate in the Program.
Program Duration	Initial program implementation period is three years, commencing in June, 2008 and ending in May, 2011. Assumed that the program will continue throughout the planning period.
Program Description	Commercial and industrial customers willing to curtail their service by the Company at times of peak demand enroll in the Program by signing a curtailment service contract and providing an action plan for complying with the rider. The contract will specify that during curtailment events in which the customer participates, the customer must reduce demand to level specified by the customer or incur a penalty for not reducing demand. The Company will provide participating customers with an automated fax and email, on the day prior to or the day of a curtailment event. Customers will receive a per-event incentive payment in the form of a bill credit for reducing demand to the contractually-specified level during a curtailment event. Unlike the proposed Interruptible Program, customers receive payments only for demand reductions during events.
Eligible Measures	N/A
Implementation Strategy	The Program will be implemented by the Company, with customer outreach and enrollment led by the Company's Account Managers. The Program would be open to customers on the following Service Rates: • Large General • Small Primary • Large Primary • Large Transmission The Company will identify customers on these rates that also have an interval meter and that have the ability to reduce demand by at least 50 kW. The Company will notify customers by 8am on the last business day prior to and/or 8am on the day of the curtailment event. The notification will direct customers to the Program website, which will contain additional information about the event, including event period hourly prices. The customer will then notify the Company by 10am of its intent to participate in the event, and its curtailable load for each hour of the event. If the customer does not respond by 10am, the Company will assume that the customer will not participate and no incentive will be paid. There is no penalty for non-participation during a curtailment event. Customers that do not respond to three consecutive curtailment requests will be considered in default of the Program. Also, customers that notify the Company of their intent to participate but do not actually curtail load will also be considered in default of the Program. The Company will eliminate customers in default of the Program with thirty days written notice. The Company will then determine the appropriate curtailment total and the resulting payments/bill credits.
Exit Strategy	Demand response programs typically have relatively little market impact in the sense that program market entry/exit alters market behavior. Customers typically will not install energy management systems specifically to enable participation in such programs, since the customer-side economics of DR programs usually don't justify the investment cost. Therefore, participants invest relatively little and do not risk stranded investment should the program be terminated.

Marketing Strategy	Eligible customers will be identified and informed about the Program through personal contact by Company Account Managers as well as through direct mailings. Additional outreach will be conducted through program presentations at relevant meetings, conferences, and events targeting large industrial end users in the Company's service territory.
Incentive Strategy	Customers will receive a price per kWh for reductions during a called event.

Measure	Incentive Levels per Unit
N/A	Incentives will be determined by the market price at the time of each event.

Milestones	February 2008 – Issue RFP for implementation services April 2008 – Execute implementation contract June 2008 – Complete detailed implementation plan June – September 2008 – Program launch window August 2010 – Go/no-go decision on post-2010 program implementation.
EM&V Requirements	An EM&V approach that is typically used for curtailment or interruptible programs compares interval meter data for participating customers during curtailment events with customers' baseline peak demand. The customer baseline will be calculated by selecting 10 similar days that occurred prior to the curtailment event day, not including any weekend, holiday, or other curtailment event days. From these 10 similar days, the 3 days with the highest overall energy consumption during the curtailment hours will be selected, and an hourly average baseline will be calculated from these data.
Administrative Requirements	Program administration will require marketing and outreach to eligible customers, customer enrollment and contract management, notification of curtailment events, and processing of incentives.
Estimated Participation	80 commercial and industrial customers expected to enroll in the Program, with each achieving an average demand reduction of 500 kW per curtailment event.
Estimated Budget	

Budget Category	2008	2009	2010	Total
Incentive Costs	$205,000	$210,125	$215,378	$630,503
Administrative Costs	$205,000	$210,125	$215,378	$630,503
Total	$410,000	$420,250	$430,756	$1,261,006

Savings Targets	40 MW of peak demand reduction.
Program Metrics	The primary metric for the program is the peak load reduction target. Secondary metrics include the customer attrition rate (both drop-outs and customers that are removed from the program for non-participation).
Cost-effectiveness	Total Resource Cost Test: 1.56 Utility Cost Test: 1.08 Participant Test: 2.88 Rate Impact Measure Test: 1.02

PROGRAM	Industrial Interruptible Tariff
Objective	Acquire 50 MW of peak load reduction through enrollment of industrial customers in the Interruptible Tariff Program.
Target Market	Open to any industrial customer with the capacity to curtail load by at least 25 kW.
Program Duration	Initial implementation period is 2008 – 2010 with a subsequent determination regarding continued implementation. For planning purposes estimated program impacts are modeled for the entire planning period.
Program Description	Industrial customers willing to have their service interrupted by the Company at times of peak demand enroll in the Program by signing an interruptible service contract with a fixed term (e.g. one, three and/or five years). Curtailment/interruption can be for either reliability or economic reasons. Customers will be allowed to buy-through a curtailment called for economic reasons. The customer incentive will be graduated based on the contract length, with higher incentives under longer contracts. The contract will specify that during program "events" (which could be defined by reliability or economic conditions), the customer must have their service interrupted or reduce demand to a specified level, or incur a penalty for not reducing demand. The Company will provide participating customers with an automated phone call or email, with at least four hours advance notice prior to an event. Interruptions will be limited to one event per day for a duration of between two and eight hours, ands 10 events in total per season, with maximum of 80 interruptible hours per seasons. The season is defined as the months June – September.
Eligible Measures	N/A
Implementation Strategy	The Program will be implemented by the Company, with customer outreach and enrollment led by the Company's Industrial Account Managers. The Company will determine the appropriate discounted charges for demand and energy, as well as the penalties for non-compliance. The Company will identify customers with the ability to reduce peak demand by 25 kW. Customers will sign contracts with the Company specifying the amount of interruptible (non-firm) and firm load. Customers will be allowed to adjust their Curtailable load each year subject to the constraint that it must equal or exceed 25 kW. Prior to an event, the Company will notify customers through a phone call, text message, email and/or fax that an event will occur. The Company will endeavor to provide as much notice as possible, but will provide a minimum of four hours notice. The Company will monitor the customer's performance during the event to determine compliance. Failure to comply with an event call will result in assessment of penalties, and failure to comply with three of more calls may result in the customer being dropped from the tariff and placed on its otherwise applicable tariff.
Exit Strategy	Interruptible programs typically can be terminated at the Company's discretion with 60-90 days notice. Typically, program termination would occur after the normal curtailment season.
Marketing Strategy	Eligible customers will be identified and informed about the Program through personal contact by Company Account Managers as well as through direct mailings. Additional outreach will be conducted through program presentations at relevant meetings, conferences, and events targeting commercial and industrial end users in the Company's service territory.

Incentive Strategy

The customer incentive will be in the form of a payment or bill credit at a price per kW of curtailable demand for the relevant curtailment season, divided by the numbers of months in the season and paid per month. In addition, customer will be paid a price per kW for each kW curtailed per hour during an event in excess of the amount of customer demand committed under the program. Failure to comply to with a curtailment/interruption call will result in a penalty equal to 150% of the total annual incentive payment divided by the number of contractually-specified events, the result of which will be multiplied by percentage underperformance of the customer during the event.

Measure	Incentive Levels per Unit
N/A	On average the incentive will be approximately $3.25/kW/event or $35/kW per season maximum.

Milestones

Program is currently active.

EM&V Requirements

An EM&V approach that is typically used for interruptible programs compares interval meter data for participating customers during curtailment events with customers' baseline peak demand. The customer baseline will be calculated by selecting 10 similar days that occurred prior to the curtailment event day, not including any weekend, holiday, or other curtailment event days. From these 10 similar days, the 3 days with the highest overall energy consumption during the curtailment hours will be selected, and an hourly average baseline will be calculated from these data.

Administrative Requirements

Program administration will require marketing and outreach to eligible customers, customer enrollment and contract management, notification of curtailment events, and processing of incentives and penalties.

Estimated Participation

250 commercial and industrial customers expected to enroll in the Program and achieve an average demand reduction of 200 kW per curtailment event.

Estimated Budget

Budget Category	2008	2009	2010	Total
Incentive Costs	$1,998,750	$2,048,719	$2,099,937	$6,147,405
Administrative Costs	$0	$0	$0	$0
Total	$1,998,750	$2,048,719	$2,099,937	$6,147,405

Savings Targets

50 MW of peak demand reduction.

Program Metrics

The principal program metric will be potential peak load reduction, and that will be governed by number of customers recruited and the committed load reduction per customer.

Cost-effectiveness

Total Resource Cost Test: 1.59
Utility Cost Test: 0.36
Participant Test: 4.64
Rate Impact Measure Test: 0.34

5. Evaluation, Measurement, and Verification (EM&V)

5.1. Overview

Program evaluation, measurement, and verification (EM&V) activities are central to the success of the AmerenUE portfolio, and are used to estimate program energy savings impacts, monitor program performance, and assure that incentives paid are proportionate with achieved energy savings (i.e., preventing overpayment). These activities serve as a way to audit, both internally and independently, the actual level of energy savings being delivered and to maximize energy savings achieved for the given program budget amount.

EM&V activities generally can be classified as: (1) Impact evaluations – determinations of program energy savings and cost-effectiveness; (2) Process evaluations – assessments of the effect of program structure and implementation that has affected program performance; (3) Verification of program participant compliance with program terms and of actual measure energy savings for purposes of paying incentives; and (4) Market effects studies – attempts to determine the extent to which a program has changed the way a market behaves; for example, by influencing retailer stocking practices.

Impact evaluations are most often performed by organizations independent of those responsible for designing and implementing programs to ensure objectivity. Verification functions often are performed by program implementers or administrators to ensure that the program is paying only for actual installed and operating energy saving measures. Process evaluations and market effects studies typically are also prepared by independent evaluators, but process evaluations in particular are used less to verify performance than to help improve performance and, as such, require active participation by the program administrator/implementer.

An impact evaluation involves three basic determinations:

1. The number of measures actually installed and operating. Program tracking information will report claimed installations based on incentive applications or other records of program participation. The impact evaluation uses various sampling and statistical techniques to independently verify these claims. This activity is relatively straightforward and typically relies on follow-up phone or site surveys of participating customers.

2. The amount of energy saved by the energy efficiency measures installed through the program. The Company's Plan is based on estimates of likely energy savings per measure. The evaluation will use a variety of techniques to independently calculate per measure savings. The methods required to independently verify per measure savings can be quite complex depending on the measure, and will involve activities such as placing measurement equipment on installed measures, conducting billing analysis or preparing engineering studies. A substantial amount of such work already has been done across the country for common measures that often can be used in other jurisdictions because the results will not vary significantly from place to place.

3. The level of energy savings that can be attributed to the program. Every program will have some participants who would have undertaken the action promoted even in the absence of program incentives (free riders). Similarly, every program will induce some

customers to take actions without actually claiming incentives; in other words, they will be influenced by the program via retailer advertising or word-of-mouth to install measures that the program does not actually provide incentives for (spillover). The impact evaluation attempts to determine the net effect of free riders and spillover in determining the level of energy savings that the program was actually responsible for. This net effect is sometimes known as the net-to-gross (NTG) ratio. The research and analysis required to independently establish attribution factors can be quite complex and may not be particularly precise given that it relies largely on the responses of program participants and non-participants to a battery of behavioral questions conducted some time (sometimes many months) after they participating customers took advantage of the program's services.

The product of the number of verified measures installed under a program, verified energy savings per measure and the NTG ratio is the net energy savings realized per program. Depending on the rigor applied to each step and the availability of data, an impact evaluation can take six months or more to complete from the relevant date of reference. For example, an evaluation of year one program energy savings (June 2008 – May 2009) might not be completed until late 2009.

Process evaluations are used principally to assess the effectiveness of program design and delivery and gather information that can be used to improve effectiveness. Typically, such evaluations consist of reviews of program design documents and interviews with program managers, implementation contractors, customers and trade allies. Process evaluations are most valuable when conducted early enough in a program cycle that necessary design or implementation changes can be made, and the effects measured, within the cycle.

Market effects studies tend to be associated with market transformation programs, where the focus is on estimating whether key metrics of market behavior are affected by program efforts. Such metrics would include, for example, stocking practices for efficient equipment, the level of awareness and promotion of efficiency options by trade allies, the extent to which retailers and service providers market energy efficiency as a product feature, and the market share of efficient products. Market effects studies can be useful as an element of market research used to support improved program design and delivery.

There are several EM&V related activities that will be undertaken at various levels and at different stages during the portfolio implementation process to support the purposes outlined above. Although some of these activities are inherently program management activities and the responsibility of the Company, we believe that all parties are best served by establishing a forum for ongoing stakeholder participation that provides the opportunity for parties to shape the structure of the evaluation process initially and as a function of the evaluation results. Key EM&V activities include the following:

- Select an independent program evaluation contractor(s);
- Establish appropriate program M&V protocols and guidelines;
- Establish stipulated savings values for prescriptive measures;
- Establish benchmark net-to-gross values;
- Verification and due diligence of project savings;
- Provide an independent evaluation of program impacts;

- Provide internal quality assurance/control; and
- Conduct process evaluations.

5.2. Selecting a Master Evaluation Contractor

The credibility of program energy savings is based on the verification of reported energy savings by an independent evaluator. The evaluation process is managed differently in different jurisdictions, but in every case, the process relies on the use of an evaluation contractor without financial interest or the appearance of any conflict of interest with the Company or any of its implementation contractors.

The Missouri IRP rule does not specifically require that an independent evaluator be retained. However, given the large number of programs to be implemented, the absence of an established program evaluation capability with the Company and the need to establish the credibility of program savings, the Company intends to solicit and retain one or more evaluation contractors to conduct required process and impact evaluations. We will work with stakeholders to develop a list of potential bidders to whom the RFP would be sent. While the Company ultimately must take responsibility for the choice of contractor, we believe that the proposal review process would benefit from stakeholder participation.

5.3. Establish Appropriate Program M&V Protocols and Guidelines

The Missouri IRP rule (240-22.090) requires that impact evaluations be based on comparisons of pre-adoption and post-adoption loads of program participants, corrected for the effects of weather and other inter-temporal differences and/or comparisons between program participants' loads and those of an appropriate control group over the same time period. In addition, the rule requires the utility to develop load-impact measurement protocols that are designed to make the most cost-effective use of the following types of measurements, either individually or in combination:

- Monthly billing data
- Load research data
- End-use load metered data, building and equipment simulation models
- Survey responses or audit data on appliance and equipment type, size and efficiency levels, household or business characteristics, or energy-related building characteristics.

These requirements are consistent with the International Performance Measurement and Verification Protocol (IPMVP), and during the program design phase and prior to program launch, the Company will work with the Company's evaluation contractor to establish appropriate M&V protocols specific to each program based on the appropriate IPMVP approach. Specifically, the M&V protocols will address the following:

- The type of evaluation required for each type of program based on IPMVP guidelines. The guidelines include four basic options:
    - Option A: Stipulated savings values

  - Option B: Short-term field measurement of savings
  - Option C: Detailed billing analysis
  - Option D: Calibrated simulation analysis

- The schedule for evaluation activities.
- The methods to be used in estimating and applying net-to-gross ratios.
- The contents and format of evaluation plans to be prepared by the evaluator.
- The contents and format of evaluation reports.
- The allocation of available evaluation funding across time and evaluation activities.

With respect to the specific evaluation approach for each program, the Company believes that stipulated savings values (Option A) should be utilized to the extent possible where appropriate to help streamline the savings calculation process and minimize impacts on administration budgets. Where stipulated savings values cannot be feasibly established, simplified M&V methods, requiring minimal data collection, will be developed for specific measures, which may include the implementation of a single measure or one-for-one replacement of equipment such as chillers and motors. For all other projects, such as comprehensive projects or custom rebates, a more robust M&V method may be required. The level of M&V performed should correspond to the level of risk to the Company in assuring performance and persistence of savings.

5.4. Establish Stipulated Energy Savings Values for Prescriptive Measures and Rebates

The Company proposes that stipulated energy savings values will be developed for programs with primarily prescriptive measures and rebates, such as the Residential Lighting and Appliances Program and the C&I Prescriptive Rebate Program. In these programs, the majority of energy savings is expected to come from measures such as energy efficient lighting upgrades where the savings are well understood and can be reasonably predicted. The M&V methods would conform to IPMVP Option A, which provides for stipulated energy savings values and verification of installations for prescriptive measures included in approved measure lists.

Stipulated energy savings values would be developed as a collaborative effort between the Company and the evaluation contractors, with review by the Commission staff and stakeholders. The values accepted by the evaluator will be used by the Company for tracking energy savings and by the evaluator at the time that the evaluator verifies savings. The evaluator will have the discretion to modify these values based on any more current information.

Verification of installation for programs and measures utilizing stipulated energy savings values would be based on a randomly drawn sample of installations. The sample size would be based on a statistical confidence interval to be determined (e.g., 90% confidence interval with 10% precision). The Company would be responsible for tracking claimed installations and would (as noted below) conduct its own verification checks as part of program management due diligence. However, for purposes of the formal evaluation, the evaluation contractor would be responsible for formal verification.

5.5. Verification and Due Diligence of Project Savings

The Company will work with implementation contractors, EM&V contractors and stakeholders to develop and implement QA/QC, inspection and due diligence procedures for those programs for which stipulated energy savings are not appropriate. These procedures will vary by program and are necessary to assure customer eligibility, completion of installations, and the reasonableness and accuracy of savings upon which incentives are based. The evaluation contractor will have responsibility for installation verification and estimation of energy savings for purposes of independent evaluation.

The activities that the Company will undertake in performing M&V procedures may include, but are not limited to, the following:

- Review of custom rebate applications and project proposals for eligibility and completeness.
- Inspect and verify a statistically valid sample of installations for purposes of ensuring compliance with program requirements.
- Prepare and facilitate M&V plans where needed based on the project, and assure adherence to IPMVP protocols.
- Approve projects and incentive amounts for payment.

The Company will retain third party engineering expertise for project evaluation and M&V services as necessary.

5.6. Provide an Independent Evaluation of Program Impacts

Impact evaluations are designed to analyze and measure the impact of a program in terms of program participation, measure installation and achieved net demand and energy savings. The impact evaluation is focused on the quantitative measurement of the attainment of program goals, and the primary objective of an impact evaluation is usually the independent verification of program savings.

The Company's evaluation contractor(s) will determine program and portfolio impacts based on the evaluation protocols for individual program evaluation plans. The Company will implement a program tracking system that can support both ongoing program management and assessment and the independent evaluation. A critical requirement of an evaluation study is a detailed analysis and explanation of the factors accounting for the degree to which the original estimate of energy savings corresponds to the estimate produced by the study, termed the "program realization rate". A realization rate often incorporates two elements; (1) verification of gross energy savings—the extent to which installation of a measure or completion of a project produces estimated energy savings, and (2) estimation of net impacts – subtracting from gross verified energy savings the energy savings realized by free riders.

To maximize the efficiency of evaluation funds, final program designs and implementation plans will include detailed recording, tracking and reporting protocols.

5.7. Provide Internal Quality Assurance and Control

In addition to the procedures outlined above for verifying energy savings from the Company's proposed portfolio, we will implement appropriate internal controls to assure the quality of program design and implementation. The Company will establish a consistent and integrated tracking and reporting system for all programs in the portfolio. The Company will produce internal monthly reports on all customer interactions, including customers recruited, incentive applications, incentives processed, and installations verified, and will establish procedures for ongoing verification. The Company will require implementation contractors or staff to routinely contact/visit a sample of participating and non-participating customers to assess the quality of program delivery and the installation of measures for which incentives were claimed. The Company will track on an on-going basis, incentive fulfillment time, technical services delivery times (how long between customer request and audit completion for example), incentive documentation, and customer complaints among other metrics of program performance.

5.8. Conduct Process Evaluations

The IRP rule requires that each demand-side program that is part of the utility's preferred resource plan shall be subjected to an ongoing evaluation process which addresses at least the following questions about program design:

- What are the primary market imperfections that are common to the target market segment?
- Is the target market segment appropriately defined or should it be further subdivided or merged with other segments?
- Does the mix of end-use measures included in the program appropriately reflect the diversity of end-use energy service needs and existing end-use technologies within the target segment?
- Are the communication channels and delivery mechanisms appropriate for the target segment? and
- What can be done to more effectively overcome the identified market imperfections and to increase the rate of customer acceptance and implementation of each end use measure included in the program?

Process evaluation plans for each program will be developed in conjunction with the impact evaluation plans by the Company's evaluation contractor(s). Each plan will be expected to identify the key researchable questions associated with the design and delivery of each program. These questions are expected to be program-specific variants of the questions outlined in the rule. The most efficient use of evaluation resources will require that the process evaluations be phased to ensure that the programs with the greatest potential impact be evaluated first to identify any design or implementation issues that could impede realization of program goals. Second, resources will be allocated to process evaluations of those programs for which the Company has the least information regarding the behavior of the relevant market segment, such as the C&I market for customer incentives and the HVAC services market.

An initial task of the evaluation contractor will be to review the initial designs prepared by the Company and its implementation contractors against the questions outlined above. The review will be intended to identify any potential design issues based on the evaluator's experience, as

well as to identify program performance indicators that the Company should track to support subsequent evaluations.

6. Implementation Planning

Implementation of the demand side management efforts outlined in this Plan requires continued planning at both the portfolio and program levels to further refine and expand the information presented. This section outlines the tasks and schedule for developing portfolio elements and introducing them to the market-place in an orderly, cost effective manner.

6.1. Portfolio Level

Implementation planning at the portfolio level involves an ongoing assessment of program mix and timing to assure that the portfolio remains aligned with objectives. Specific implementation activities associated with the portfolio as a whole include tracking system development and management, market assessment and market research, development and management of an overall marketing and communications strategy and design and management of a back office including processes for incentive fulfillment, procurement of implementation services, and integration with broader corporate services such as billing, accounting and web services. An additional element of the portfolio planning process will be ongoing coordination with Laclede Gas to ensure that all available opportunities for integrated program delivery and economies of scale/scope can be captured.

6.1.1. Market Research and Analysis

This initial Plan is based on best-available information regarding the market into which the portfolio is to be introduced. However, lack of territory-specific data regarding energy efficiency measure saturations and housing and building stock limits the Company's ability to conduct effective portfolio and program planning over the longer term. In addition, while the programs included in the portfolio are based on current practice across the utility industry, the Company has not had the opportunity to test proposed program design with customers through targeted market research, with the exception of the AmerenUE Residential TOU Pilot Study *Load Research Analysis First Look Results* prepared by RLW Analytics in February 2004. In addition, although the Company conducted a number of energy efficiency pilot programs that contained elements to those that have been incorporated into the program designs proposed for this portfolio, no market tests have been made of the current proposed designs.

The Company will, therefore, identify, plan and execute specific market assessment and market research projects over the next three years in an effort to improve its ability to design and target cost-effective efficiency and demand-response programs. In addition to program process evaluations, these programs could include:

An appliance saturation study.

- Market characterization studies of key markets such as residential lighting, residential HVAC, commercial lighting, and new construction that will enable the Company to improve its understanding of baseline practices.
- Customer satisfaction surveys and focus groups designed to elicit customer feedback on program design and delivery.

6.1.2. Develop Portfolio Communications Plan

Each program in the portfolio will have a specific marketing, communication and recruiting strategy. However, at the portfolio level, a broad communications strategy will be developed that addresses program branding, program collateral standards, customer service standards for implementation contractors, use of Company's trademark by implementation contractors, call center and customer account representative training, web standards and integration with the Company's broader communications strategy. This planning effort will be address and, as appropriate, coordination with related communications efforts of Laclede Gas.

6.1.3. Back-office Systems Development

Back-office systems for tracking, reporting and incentive fulfillment are a critical operational component of the efficiency portfolio. Accurate acquisition, storage and reporting of data are essential for portfolio management and goal achievement. The system(s) must be capable of providing timely information to evaluate portfolio and program performance and support adjustments in program efforts and focus. The final design of the back-office systems must be consistent with portfolio administration and program implementation structures and current Company IT systems and resources.

Key system requirements include:

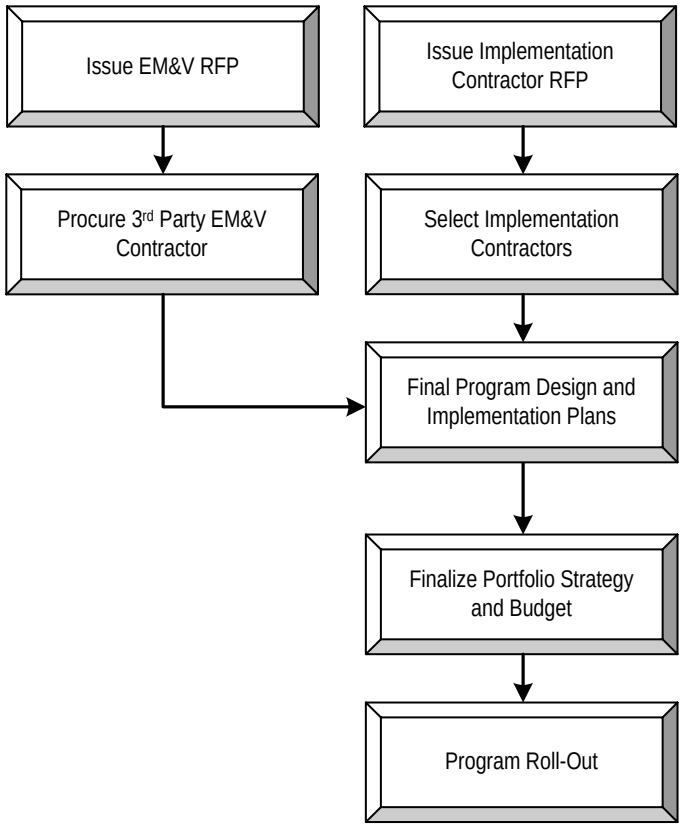
- Ability to log each customer participant/customer/location
- Ability to track each interaction with the participant
- Ability to match participant/customer information to account numbers and associated data on the Company's current systems, and ability to upload/download account information
- Ability to store and upload/download site and project information
- Ability to process and record incentive transactions
- Ability to send/receive to/from program web site

In addition to building a tracking system, processes must be developed for receiving, processing and paying program incentives. Typically, implementation contractors have responsibility for incentive payment with reimbursement by the Company. In the case of large projects, however, the Company may retain the incentive approval and payment responsibility. In either case, the processes must be uniform, documented and auditable.

6.2. Program Level

The process for developing and implementing the efficiency programs in the portfolio will typically follow the process diagramed in Figure 5.

Figure 5: Program Development and Implementation Process



6.2.1. Select Implementation Contractors

The Company will rely extensively on third party contractors to implement the programs within its slice of the portfolio. These contractors will be selected via competitive bid through requests for proposals expected to be issued in early 2008. The Company will evaluate these bids, and will select contractors based on best value offered to the Company.

Through guidance gained from industry experts, the Company will evaluate best practices for releasing RFPs to acquire implementation contractors. The Company will investigate options including release of individual RFPs for each program or bundling programs into logical grouping that target specific customer classes or market segments.

The Company will consider use of performance-based contracts that tie some fraction of contractor compensation to delivery of verified energy savings, or provide incentives for delivery of specified verified energy savings below budget. Use of performance-based contracts could enable the Company to manage some of its performance and evaluation risk, although the

value to the Company and its customers of such contracts depends on their structure and the cost of the risk premium that the Company would need to pay.

6.2.2. Finalize Program Designs and Implementation Plans

The program templates presented above are intended to provide sufficient detail on program design, implementation and evaluation to support stakeholder and Commission review of the Company's portfolio. However, actual implementation must be based on much more detailed program designs and implementation plans. The Company envisions that these detailed plans will be developed by the entities selected to implement the programs, in close consultation with the Company. Should performance-based contracts be used for one or more program elements, the contractor should retain some latitude for program design to maximize the likelihood that it can meet performance targets.

Final program designs will describe the final proposed structure of the program, specific incentive levels or methods for calculating incentives, and marketing and recruiting strategies to ensure that targets are met. It is likely that as final designs are completed assumptions used to prepare this plan will be revised. Specifically, final design is likely to refine the types and costs of measures to be included, the level of incentives and specific program costs based on the more detailed design. Therefore, the final step in program design process will be a recalculation of program element cost-effectiveness to ensure that the program continues to pass the TRC test. The implementation plans will provide detailed roadmaps for program roll-out and management, including customer qualification, rebate fulfillment, customer care, data capture and tracking, reporting, and quality control processes. The implementation plans also will include quarterly projections of installations and spending, as well as all proposed participation agreements and incentive forms.

6.2.3. Finalize Portfolio Strategy and Budget

At the same time that the Company is working with contractors to finalize the implementation plans for its resource acquisition programs, it will develop the structure for its market transformation initiatives and will put in-place the elements needed for program and portfolio management. Once the final designs and implementation plans are complete, the portfolio budget will be rebalanced to ensure that it remains within the spending limit, and the portfolio TRC will be checked to ensure that the portfolio remains cost-effective.

6.3. Program Implementation Management

Direct program implementation will be the responsibility of the contractors retained through the procurements described above. The Company will assign a Residential and a Business program manager to oversee the contractors. These managers will have responsibility for ensuring effective implementation processes are in-place and followed and for regular reporting of program progress. Weekly, monthly, quarterly and annual reporting will be required. The Company will review the performance of all contractors and will add or subtract contractors on as needed basis.

6.4. Portfolio Implementation Schedule

A proposed schedule for the portfolio implementation process has been developed based on program launch in June 2008. This schedule provides for completing program design and portfolio management structure development by the end of May.

A phased-in deployment of the efficiency programs is necessary for an orderly development of programs in a cost effective manner. Attempting to deploy all proposed programs simultaneously in June 2008 would over-extend management resources. Through the use of implementation contractors, the Company intends to roll-out most program elements in 2008, with the exception of the residential HVAC programs and the residential critical peak pricing program. The Company has a stated goal to become a performance leader in Energy Efficiency and Demand-response in the United States and to this end, the Company reserves the right to choose the final program launch date once all of the yet to be defined launch criteria are met to ensure that each program is established with all of the tools for success. The remaining programs will be launched in early 2009.

The proposed portfolio implementation schedule is shown in the following figures:

Figure 6: Proposed AmerenUE Business Energy Solutions (Energy Efficiency) Implementation Timeline

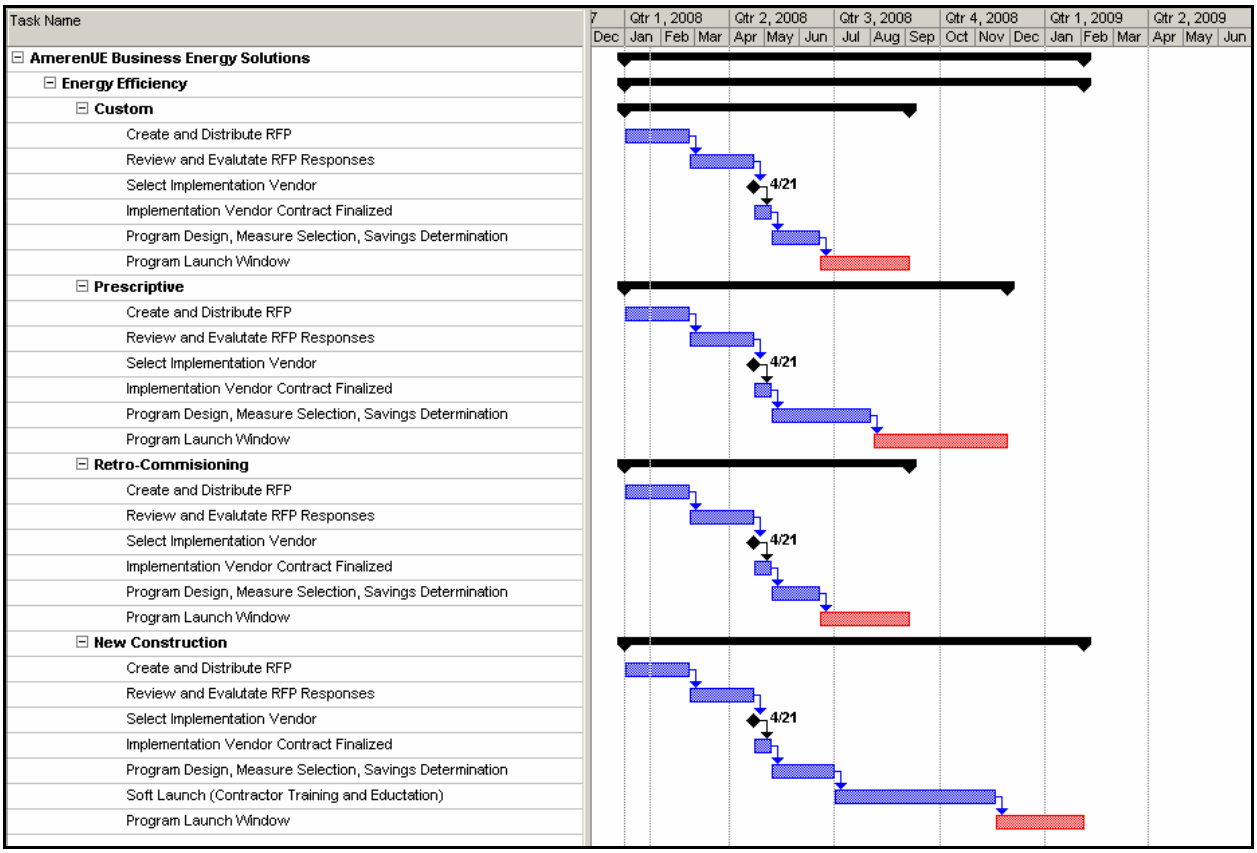


Figure 7: Proposed AmerenUE Business Energy Solutions (Demand Response) Implementation Timeline

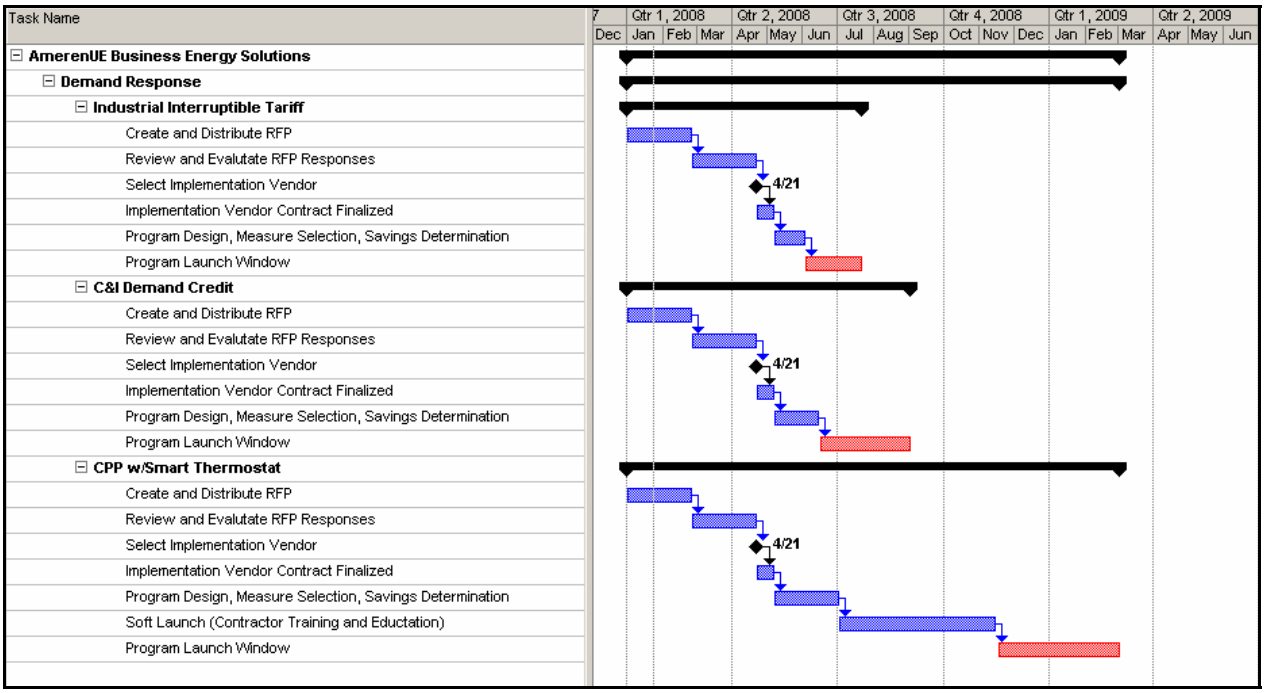


Figure 8: Proposed AmerenUE Residential Energy Solutions (Energy Efficiency) Implementation Timeline (1 of 2)

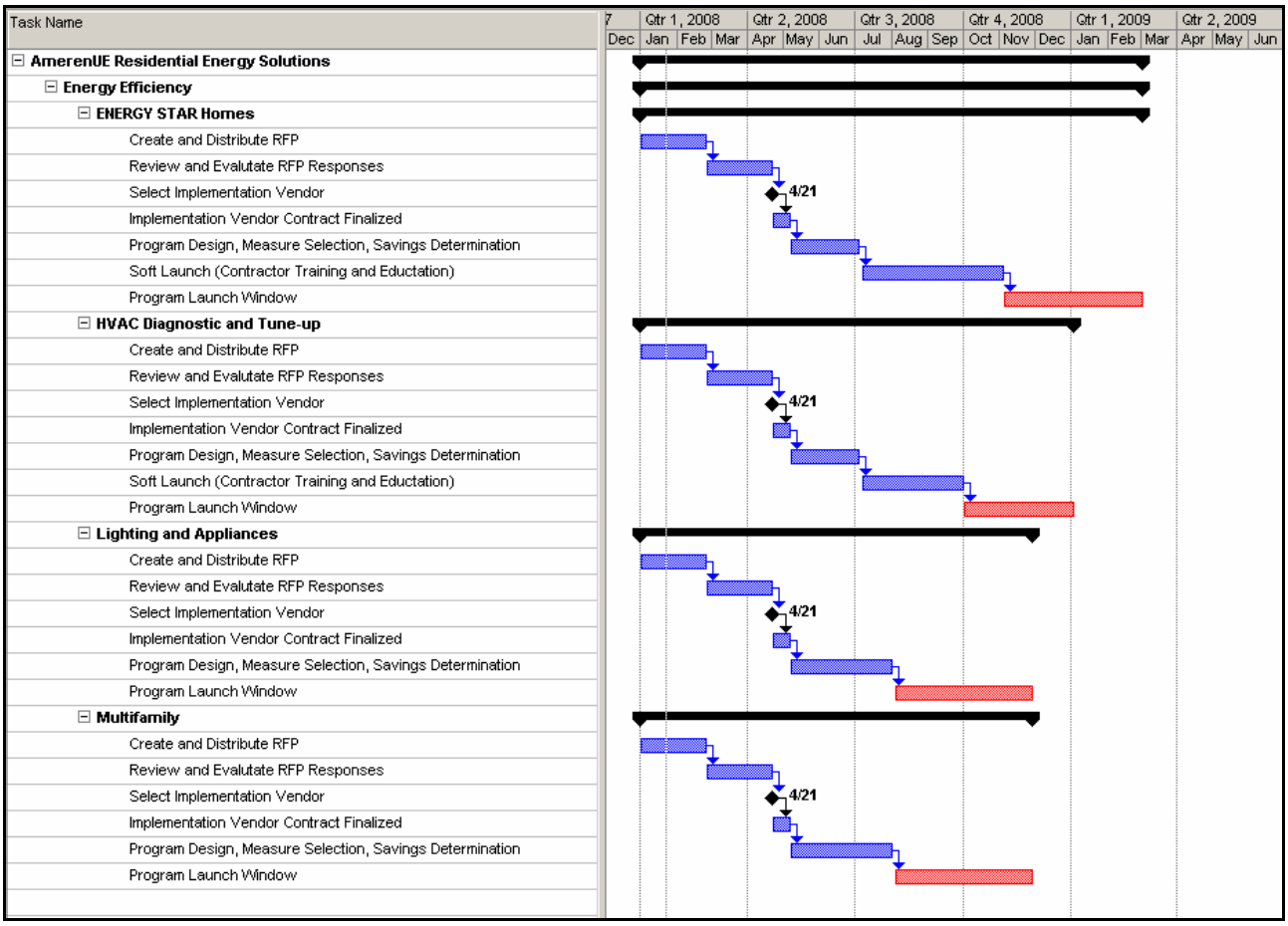


Figure 9: Proposed AmerenUE Residential Energy Solutions (Energy Efficiency) Implementation Timeline (2 of 2)

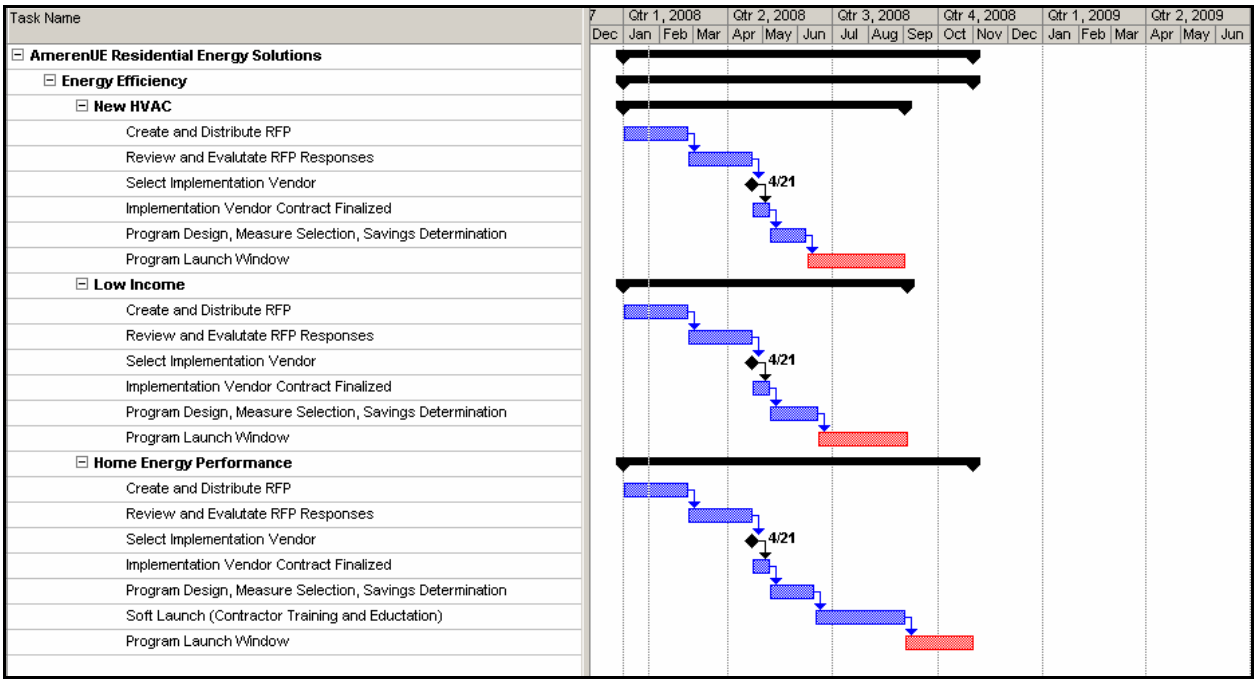
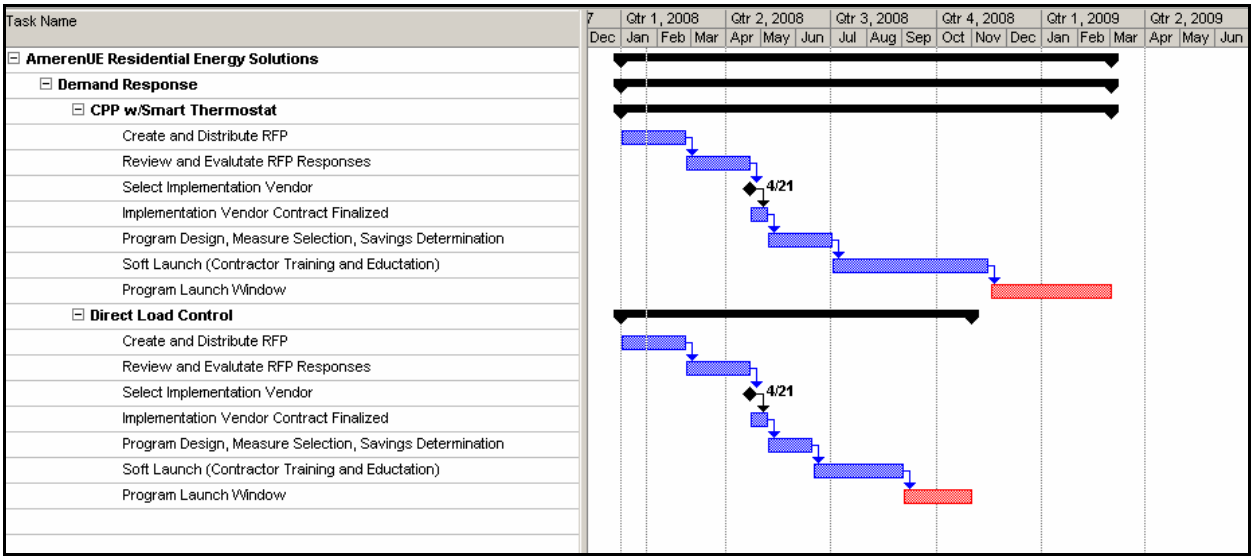


Figure 10: Proposed AmerenUE Residential Energy Solutions (Demand Response) Implementation Timeline



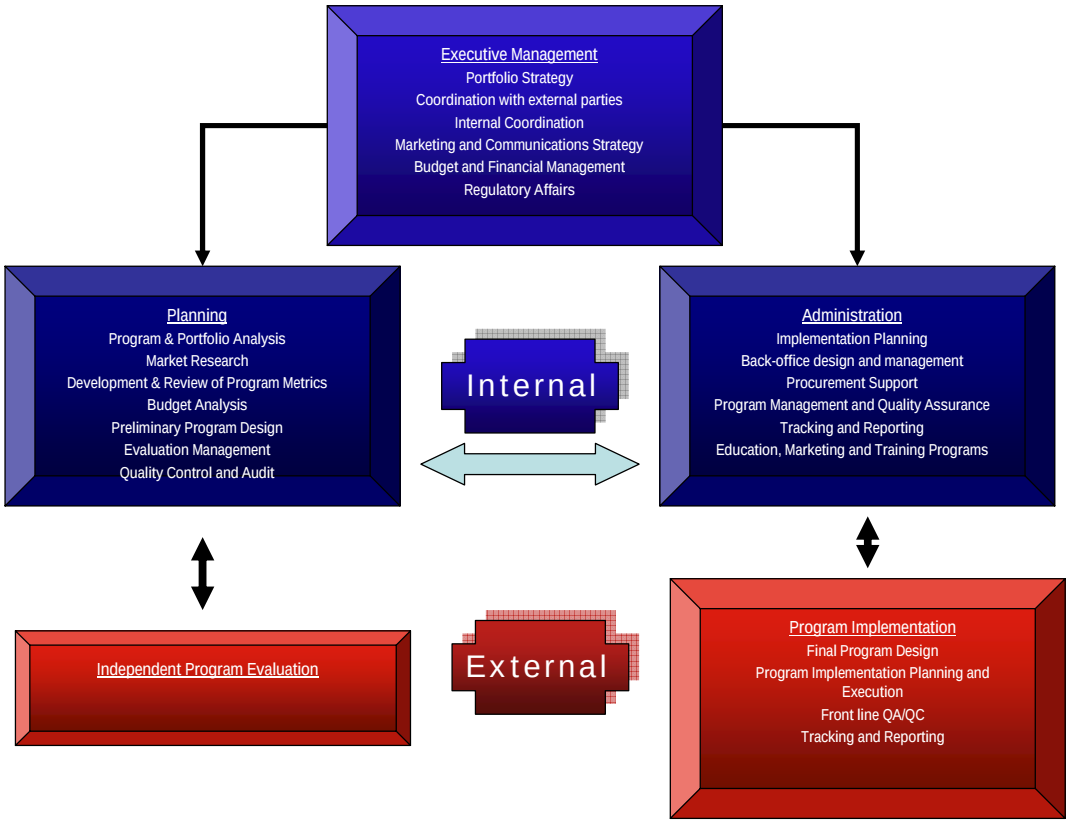
7. Portfolio Management

Successful implementation of the Plan relies on an effective and efficient process for managing several key functions at the level of both the individual programs and the portfolio level. This section outlines these functions, and the Company's proposed approach to managing them.

7.1. Management Functions

Implementation is built upon five functions, several of which are largely internal to the Company. These are illustrated in Figure 11.

Figure 11: Portfolio Management Functions



7.1.1. Executive Management - Internal

This function sets, communicates, and ensures follow-through with the Company's portfolio strategy, and includes the following activities:

- **Portfolio Strategy**: Develop and revise the strategy guiding the composition of the portfolio, including allocation of available resources across sectors and programs. The strategy will be reviewed and revised at least annually.
- **External Coordination**: Communicate the Company's strategy and progress to the Commission and key external stakeholders.
- **Internal Coordination**: Identify internal systems and functions that contribute to or are affected by program implementation and management. Ensure all internal stakeholders are involved in developing the final implementation plan. Coordinate activity to ensure internal tracking and reporting systems are in-place and integrated as necessary. Ensure use of consistent messaging and provide general oversight of the planning and implementation.
- **Budgeting and Financial Management**: Set annual program and administrative budgets consistent with the portfolio strategy and available resources. Track costs against budgets.
- **QA/QC:** Manage overall portfolio quality assurance, reviewing reports from individual programs and monitoring quality of internal systems and Company-provided services.
- **Communications and Marketing Strategy:** Coordinate development of the overall portfolio messaging, and ensure that Company-developed standards are met by program implementers.

7.1.2. Policy and Planning—Internal

This function provides the analysis and ongoing market intelligence to support the Executive function. Key policy and planning activities include:

- **Program and Portfolio Analysis**: Energy savings and cost-effectiveness analyses of the programs comprising the portfolio and the portfolio as a whole. Subsequent to Commission review of this Plan, the Company will direct development of detailed program designs and a re-analysis of portfolio costs and benefits based on any new information as it becomes available or as final designs change from initial proposals. The planning process will be ongoing and an integral element of the Company's portfolio management.
- **Market Research**: This plan was developed over a very short period of time with limited information regarding the market into which programs will be introduced (e.g. equipment saturations and market shares, the distribution of commercial building types, current building energy management practices, etc). Gathering such information, as well as building a better understanding of consumer demand side behavior is critical to the ongoing review and development of the portfolio.
- **Development and Review of Program Metrics**: Set and periodically adjust portfolio and individual program performance metrics related to savings acquisition, cost-effectiveness, quality control and customer service. Prior to formal program launch the Company will develop a portfolio management plan that prescribes performance, financial and customer

service metrics for each program and outlines the process to be used to monitor performance against these metrics.

- **Budget Analysis**: Develop and review annual program implementation budgets relative to program metrics and performance.
- **Program Design**: In most cases, detailed final program designs will be developed by the parties implementing the programs subject to Company review and approval. However, initial program concepts will be developed and analyzed by the Company for consistency with portfolio objectives, market needs and budgets.
- **Manage Evaluation:** Internal ongoing evaluation and verification activities will be developed. Third party EM&V services will be procured and the Company will work with the contractor and stakeholders to develop specific EM&V protocols, including tracking and reporting requirements for each program. Third-party EM&V is expected to commence early and be ongoing. The Program Management Policy and Planning function will be responsible for managing the evaluation work and incorporating results into ongoing program and portfolio reviews.

7.1.3. Program Administration—Internal

Also supporting the Executive function are a number of administrative activities that ensure development of and compliance with effective and efficient implementation guidelines. This function also involves critical coordination between internal and external systems. Major activities include:

- **Implementation Planning**: Managing development of plans and processes for implementing and integrating the overall portfolio management structure with individual programs. Develop implementation critical paths based on portfolio metrics and available resources.
- **Support Back Office System Design and Implementation**: Identify requirements for program customer relationship management, financial incentive fulfillment and tracking and reporting. Determine appropriateness of existing Company systems and define gaps. Identify required new systems/system enhancements and coordinate procurement/installation.
- **Procurement Support**: Many program services will be delivered by third party vendors or implementation contractors. RFPs/RFQs must be developed for specific competitive services. Contracts for delivery must be developed and include performance provisions to mitigate the Company's risk. Coordinate with internal corporate legal and procurement groups.
- **Management of Third-Party Vendors**: Day-to-day oversight of implementation contractors and service vendors to ensure delivery meets contractual standards. Identify program design and delivery issues.
- **Management of Program Tracking and Reporting**: Ensure third party implementers and vendors as well as internal staff consistently use the program's tracking system. Responsible for monthly system downloads and preparation of status reports including program performance and cost.
- **Internal EM&V**: Using the program tracking and reporting system, as well as on-site verification and customer surveys, the Company will conduct ongoing program evaluation as

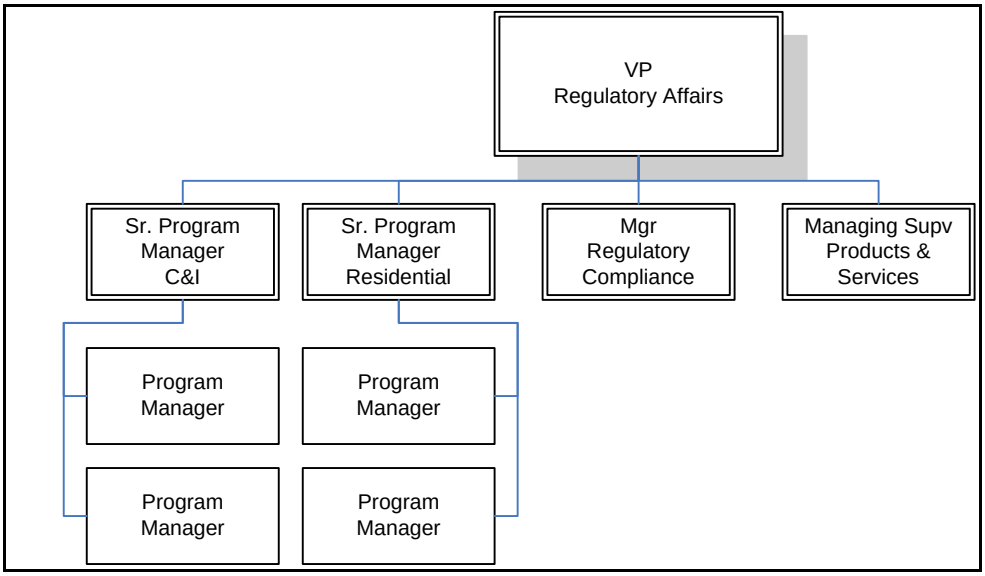
a check on overall program quality and an early-warning system to spot potential performance or customer service issues. This function also will manage third party contractors hired to perform verification services for certain programs (e.g. C&I custom incentives).

7.1.4. Program Implementation—External/Internal

For most programs proposed, the Company intends to hire experienced third party contractors. In most cases, implementers will be given the flexibility to propose final program design based on the general templates provided by the Company. This approach allows the Company to gain the benefit of the implementers' experience, and provides the contractor with the flexibility necessary to achieve the performance requirements the Company will set for each contractor. Each implementer will be required to use the Company's tracking and reporting system, and to comply with all EM&V guidelines established for the program

7.2. Management Structure

Figure 12: AmerenUE Organizational Chart



7.3. Tracking and Reporting

An important early implementation activity will be design and installation of a program-wide tracking and reporting system. At this time, a final decision has not been made as to whether existing corporate systems can be configured to serve the function or whether a system will be procured to run on top of corporate systems. The tracking and reporting system will be required to enable the tracking of all transactions associated with implementation including all customer interactions (including provision of program incentives and services and associated estimated and verified savings) as well as all key internal interactions. The system also will be required to

support flexible reporting, and import/export capability to the Company's existing customer accounts, as well as be capable of linking to any web-based program portal.

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Appendix A.

Description of the Demand-Side Analysis

The portfolio proposed by the Company is the product of a multi-stage analysis process intended to gather and process the information required under 4 CSR 22-240.050 Each of these steps is described below.

A.2. Measures and Measure Data

The first step in the analysis process is to collect the set of energy efficiency measures that will be analyzed as the building blocks for demand-side programs. A measure is a specific technology or practice that results in a decrease in the amount of electricity used per unit of useful service. A common measure is a compact fluorescent light bulb (CFL) when it is used to replace a typical incandescent light bulb. The same level of lighting output is provided using a technology that requires much less electricity. Other measures might include installation of more efficient commercial lighting technologies, optimizing the refrigerant charge in a central air conditioner, and installing premium efficiency motors.

Replace–on-Fail versus Retrofit: How Savings and Costs are Counted

As described above, an energy efficient measure is a technology or practice which, when implemented, results in less electricity being used to deliver the same service. How much electricity is actually saved depends on how we define the baseline against which savings are measured. Two types of baselines are often considered.

Replace-on-fail baseline: Most pieces of energy-using equipment have finite operating lives, and most consumers do not replace operating equipment before either that equipment fails or, in the consumer's mind, it has reached the end of its useful life. At that point, the consumer must make a decision about what new equipment to purchase. In most cases, there are several options to choose from, each with a different level of energy consumption. When we calculate the energy savings resulting from adoption of a more efficient piece of equipment, we calculate the difference between the energy used by the efficient equipment choice and the energy used by the standard efficiency piece of equipment. Similarly, the costs we count are only the incremental costs of the more efficient alternative over the standard technology. For example, if a homeowner needs to replace their refrigerator, they have a choice between a new refrigerator that meets the basic federal energy efficiency standard or one that meets the higher ENERGY STAR standard. The level of energy savings they would realize by purchasing the ENERGY STAR model is the difference between that model and the standard efficiency new refrigerator. This difference is much lower than the difference between what their old refrigerator used and what the new unit will consume. Similarly, for purposes of the cost-effectiveness analysis we only count the difference in cost between the ENERGY STAR refrigerator and the standard new refrigerator.

Retrofit Baseline: There are some situations in which a working piece of equipment is assumed to be replaced before the end of its useful life or for which there is not an existing baseline. For example, adding insulation to a home is a retrofit measure – the decision is to add or not add insulation and the costs and savings are measured relative to the level of insulation that is already in the home. Similarly a measure that involves properly charging the refrigerant in an existing central air conditioner is considered a retrofit measure, and savings are measured relative to an existing under- or over-charged unit. The cost of the measure is the full cost to send a technician to test and properly charge the system.

The objective of this step is to develop a comprehensive list of energy efficiency measures that will be screened as part of the planning process. The list of measures to be characterized should cover all major end uses within major market segments and customer classes.

There are several sources of measures and associated measure data. The source often used for most standard measures is the Database for Energy Efficiency Resources (DEER) http://www.energy.ca.gov/deer/. This database is maintained by the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) for purposes of utility energy efficiency planning and program design. The database is regularly updated using the results of recent program impact evaluations, market studies and direct surveys of equipment suppliers. In addition to using this database, additional measures were added to the database used for this analysis based on work that ICF International had performed for other utilities, other studies of energy efficiency potential that included measure data and recommendations from AmerenUE and its stakeholders.

The initial set of measures covered the following end uses:

- Residential
  - Lighting
  - Space Heating (including thermal integrity measures)
  - Space Cooling (including thermal integrity measures)
  - Refrigeration
  - Water Heating
  - Dishwashing
  - Clothes Washing
  - Domestic Hot Water
- Commercial
  - HVAC (Heating, Ventilation and Air Conditioning)
  - Lighting – interior and exterior
  - Motors
  - Cooking
  - Refrigeration
  - Domestic Hot Water
- Industrial
  - HVAC (Heating, Ventilation and Air Conditioning)
  - Lighting – interior and exterior
  - Motors

Note: Industrial process measures break down into two groups. The first group represents cross-cutting process measures that are likely to be used across industry types such as compressed air systems, pumping systems, efficient drive systems and so forth. The second group represents processes that are specific to each industry type such as efficient injection molding technologies in SIC 30, infrared drying in SIC 22/23 and efficient electric melting in SIC 33.

In addition to the use categories above, measures are distinguished by the sensitivity of their impacts to weather. Non-weather-sensitive measures are those for which associated energy and demand reductions are not greatly influenced by local weather conditions (primarily temperature and humidity). Such measures include lighting

technologies, motors, many appliances, food service equipment, and most industrial processes. Weather-sensitive measures are those for which energy and demand savings are directly tied to local weather conditions. These measures include all building shell improvements such as insulation, new windows, and all HVAC equipment. This distinction is critical in determining the permissible sources of data for the measures described below.

A.2.1 Measure Characterization

The analysis requires a variety of data for each measure including the following:

- Base technology, energy use, peak demand and cost (equipment, installation and annual operating and maintenance)
- Efficient technology energy use, peak demand and cost (equipment, installation and annual operating and maintenance)
- Coincidence factors for the base and efficient technologies that relate the maximum demand reductions for each measure to the system peak. For example, some measures produce their greatest demand reduction during system off-peak hours. The coincidence factor is used to estimate how much of an impact occurs at the time of system peak for purposes of estimating the value of the measure's demand reduction.
- Base and efficient technology useful lifetimes
- For devices that emit heat as a by-product of operation, a measure of the interactive effects between the efficient technology and building heating load.

The values for these variables are taken from a number of sources. Non-weather-sensitive measure data are taken for the most part from the DEER database (http://www.energy.ca.gov/deer/). This database is the most comprehensive, consistent, widely vetted and regularly updated of available sources. In some cases, however, measure cost data have been taken from other sources such as on-line price quotes for appliances, the U.S. EPA's ENERGY STAR calculators available at www.energystar.gov, or calls to retailers or installers.

The energy and demand impacts of weather-sensitive measures were estimated using the DOE-2 building energy simulation model.[3] The first step in the simulation process was to develop a representative set of building prototypes. These were:

- Residential sector

[3] The DOE-2 model was developed with funding from the U.S. Department of Energy (DOE) but now is available in the public domain. ICF International has developed a customized, proprietary version of the model that enables rapid simulation of multiple parametric analyses. The model simulates hourly building energy loads and the performance of building systems and building plant as a function of the average temperature and humidity in a given location and user-specified building characteristics for envelop, heating/cooling equipment and lighting and plug loads. By comparing the hourly energy consumption of a baseline building with the same building modified by the addition of an energy efficiency measure, yields the incremental energy savings associated with the measure, including any interactive effects.

    - Gas space heating with central air conditioning
    - Electric baseboard resistance heating with central air conditioning
    - Electric heating and cooling with a heat pump
    - Multi-Family gas space heating with central air conditioning
- Commercial sector
    - Education
    - Food Sales
    - Food Service
    - Health Care
    - Lodging
    - Office – Large
    - Office – Small
    - Retail
    - Warehouse
- Industrial Sector

The industrial sector building type was defined as a warehouse and no separate building simulation was conducted.

Each of these building types was characterized by a series of inputs pertaining to building shell (floor area, wall area, insulation levels, window and door area and type, construction, orientation, etc) and system (HVAC type and efficiency, duct efficiency, control system, etc.). These characteristics were based on the construction of a typical existing building in the AmerenUE service territory. Each building prototype was then benchmarked in its baseline configuration against AmerenUE-specific or regional building type consumption data, where available.

Once the prototypes were benchmarked, the impact of each of the weather-sensitive measures was simulated using 30 year normal weather data for the AmerenUE service territory. The results of the parametric measure simulations were then subtracted from the baseline buildings' performance to yield the hourly energy savings and coincident peak hour reduction per measure. The hourly energy savings were aggregated to match the avoided cost periods.

Appendix_ 4 CSR 240-22.050 contains the detailed measure characterization, including the savings values and costs used for the measure screening.

A.3. Measure Screening

Once all required data were compiled, measures were passed through the probable environmental benefits test screen. In the case of measure screening, program administrator costs are set to zero, since by definition there are no program costs incurred at this stage.

The method used to calculate the probable environmental test on a measure-by-measure basis was as follows:

- We obtained avoided energy and capacity costs for relevant avoided cost periods. AmerenUE uses forecasts of market prices to represent avoided energy costs. These costs were provided as 8,760 hourly values per year, and were

aggregated to 36 avoided cost periods corresponding to peak, off-peak and holiday/weekend periods for each month. These market prices also included an estimate of an annual avoided demand cost for twenty future years, and an assumed cost of CO2 of $15 per ton beginning in 2012.

- The hourly savings were aggregated into these same 36 avoided cost periods. Energy savings associated with weather-sensitive measures already were expressed in hourly terms. The hourly values for non-weather-sensitive measures were estimated using hourly load shapes developed by and purchased from Itron as part of its eShapes service. The eShapes load duration curves show include normalized values for each hour of the year for each major end use by sub-sector. The 36 annual avoided cost values were then multiplied by the per unit energy savings in each of the 36 corresponding period to yield a measure-specific annual avoided cost stream over a 20 year period. The incorporation of time differentiation, where savings that occur in higher avoided cost periods are given greater weight, adds greater richness to the avoided cost calculation than simply using an annual avoided cost.

- The net present value of a stream of avoided costs, expressed as both a $/kWh cost for energy and a $/kW cost for capacity, was calculated. The discount rate used for the analysis was nine percent.

- Annual measure energy and demand savings were multiplied by the net present value avoided energy and capacity costs to estimate the value of the saved energy over the life of the measure.

- The sum of the value of saved energy and saved demand was divided by the measure incremental cost to yield the probable environmental benefits test benefit-cost ratio.

The measure screening showed 109 residential and 493 C&I measures to be cost-effective. The screening results for all measures are shown in 4 CSR 240-22.050_Appendix A.

A.4. Program Bundling

Assembling an initial set of programs to consider has three broad elements: Measure bundling, developing program templates, and assembling program data. Each of these are described in more detail below.

A.4.1 Measure Bundling

The objective of measure bundling is to group measures into logical bundles representing “program types”. A program type is represented by a specific market segment, and high-level incentive, intervention, and delivery strategies.. For example, residential lighting and appliance measures passing the probable environmental benefits test might be bundled into a Lighting and Appliances program. The bundling process is used because, in reality, very few if any programs are designed and implemented that

include only a single measure. Program designers attempt to build programs around combinations of measures that might appeal to a given market and that can be delivered using similar channels. Program types that are used for this process are based on an ongoing review of energy efficiency program design and implementation experience.

The bundling reflects best practice as applied to the Company's current level of experience. Energy efficiency program "best practice" is much more a term of art than science; there simply is too much variability across objectives, regulatory structures and program types to enable simple broad conclusions about what is best in every case. What is best practice for a utility that has been designing and managing programs for two decades will be different in some cases from what should be viewed as best for AmerenUE .

The generic program types employed were drawn from a review of best practice program information drawn from publications of the American Council for an Energy Efficient Economy (Accessible at http://www.aceee.org/utility/exemplary_programs/index. htm), the Consortium for Energy Efficiency (www.cee.org), and the Energy Trust of Oregon (Accessible at http://www.energytrust.org/library/reports/Best_Practices/index.html?link_programs_reports_lin1Page=3) as well as from the Best Practices web site operated for the California Public Utilities Commission (Accessible at http://www.eebestpractices.com/index.asp), and from ICF International's own internal review of program operated by program administrators across the country. It also is based on a review of programs operated by program administrators across the country often considered to be leaders in the field such as Xcel Energy, Northeast Utilities, Pacific Gas & Electric, the Wisconsin Focus on Energy program; recognizing that these utilities have had much more experience and therefore may be pursuing more complex programs than would be prudent for AmerenUE. Based on the Company's review of these sources, the elements of best practice design include:

- Programs should focus on technologies/market segments with relatively large untapped potential. Program designs that offer prescriptive rebates for common technologies across the entire C&I market are relatively simple to design and administer, and are very effective in tapping into large veins of efficiency potential in lighting, motors and HVAC systems.

- Programs should leverage existing branding and delivery structures. For example, residential lighting, appliance, and new homes programs built around the ENERGY STAR brand can leverage the market awareness the brand enjoys.

- Programs should employ simple, straightforward program design.

- Incentives should be targeted at the point in the product value chain that yields the greatest leverage.

- Large customers can be most effectively tapped with custom incentive programs. These programs provide rebates for groups of measures based on calculated savings and have proved to be very effective at generating low cost (to the utility) savings.

- Effective programs require close coordination of marketing, technical support and incentives.

- Effective portfolios represent a mix of education/consumer outreach, technical support and training, and incentive elements, each of which is structured to work with the others.

- When working with upstream market participants such as national retailers or manufacturers, programs will be more effective if they employ structures with which these market participants are familiar.

- While there are exceptions, the most important of which is noted below, most best practice programs have staying power. They become best practice because their sponsors have time to refine both design and implementation. Participation rates climb as program availability becomes known through market networks, and all points in the market chain have time to align with the program.

- Finally, the point above notwithstanding, best practice, both in program design and in implementation looks forward. Even though the immediate focus of a portfolio might be on achieving certain near-term targets, success ultimately is in transforming the market such that consumers make efficient decisions without direct financial incentives. Therefore, best practice requires the Company to look ahead to identify opportunities to move out of some program markets and into others to ensure program resources are efficiently allocated.

4 CSR 240-22.050_Appendix A includes tables that illustrate how the measures that passed the screening process were bundled into program types.

A.4.2 Develop Program Templates

The second step in the process of program bundling was to develop basic program descriptions for each type that outlined key elements of design or implementation that would influence program costs and likely participation. For example, residential CFL program can be designed and implemented in a variety of ways, each with very different costs and implications for participation. Direct installation of CFLs in a home by program implementers would create much more certainty regarding installation, but would cost substantially more than an upstream program that bought down the cost of the lamps at the manufacturer or retailer level. However, the latter approach would inevitably have lower net impacts as some fraction of the bulbs purchased using program incentives would not be installed.

The templates included design and implementation assumptions related to:

- Target market

- Point of intervention in the product or service chain

- Implementation approach (in-house or contracted)

- Market strategy

- Incentive strategy
- Recruiting strategy
- Administrative support (level of internal resources required to manage a program).

A.4.3 Assemble Program Data

Once the templates had been completed, yielding a general picture of the level of program intervention, a variety of program-related data were compiled for purposes of program cost-effectiveness screening. These data were compiled based on a review of other utilities' planning assumptions and program experience as reported by those utilities or others (e.g. ACEEE's compilation of exemplary programs). For purposes of cost-effectiveness screening at the program level, we need only to make an assumption regarding total non-incentive, non-measure-related program costs. Although we attempt to break these costs down into several more discrete categories for purposes of program design, that disaggregation is not needed for analysis purposes. Where we were not able to find estimates of these discrete costs, we used estimates of total non-incentive, non-measure costs and normalized these costs relative to incentive costs. In other words, the level of program costs was tied to the level of incentive costs. We prepared a brief summary of program data for a number of utilities to inform our assumptions regarding program costs and participation. The utilities included PG&E, Southern California Edison, Northeast Utilities (Connecticut Light and Power and United Illuminating), NSTAR, Efficiency Vermont, We Energies, Xcel Energy, Arizona Public Service, Nevada Power, NYSERDA, PacifiCorp and the New Jersey Utilities.

Program-level data included:

- **Program administrative costs** – these are the utility's internal costs (mostly labor and overheads) to administer the program. Absent specific examples from comparable utility programs, an initial assumption was made that program administrative costs represented approximately 10% of incentive costs. This assumption was based on a comparison of the relative share of incentive costs represented by administrative costs for a number of utilities including PG&E, We Energies and Xcel Energy. We tied the cost to the incentive level simply as a way to simplify data input and calculation.

- **Program implementation costs** – these are the costs (mostly labor) associated directly with implementation of a program. Again, these costs were based, where possible, on the costs incurred or assumed by other utilities implementing similar programs. Our initial assumption was that these costs were 35% of incentive costs. For programs requiring more extensive interaction with customers, or which entailed more complex program services or incentive calculations, these costs were increased. For programs with simple implementation structures, the cost fraction was lowered.

- **Program marketing costs** – the costs associated with production of program marketing collateral and the execution of marketing campaigns. Again, the initial assumption was that these costs represented 15% of incentive costs. These

costs were increased for programs requiring more mass market outreach, and lowered for those requiring little marketing (such as programs that would be marketed primarily by trade allies).

Participation – The number of incremental and total participants per year. Participation is estimated internally in the ICF model as a function of the post-rebate payback period for each measure. Participation is expressed in terms of number of devices installed as opposed to number of customers, since in most cases customers can install more than one device (such as a CFL). All calculations in the model are driven off of the number of individual devices. The internally forecast participation rate is multiplied by the number of devices in any given year. This number of eligible measures is, in turn, estimated using the following equation:

Total eligible measures per year = Total Sector Units * Relevance * Number of Technology Units per Sector Unit * Technical Applicability (%) * Not Yet Adopted (%) * Annual Replacement Eligibility (%), where:

- Total Sector Units = the number of units to which a measure pertains. In the case of a CFL, Total Sector Units would be the number of homes, for example.
- Relevance = a broad measure of measure applicability based on saturation. For example, in the case of residential central air conditioning measures, the relevance would be the percentage of homes with central air conditioning.
- Number of Technology Units per Sector Unit = the number of measures that can be associated with the basic unit; for example, the number of CFLs per home.
- Technical Applicability (%) = An adjustment factor that accounts for the fact that the number of measures that could be applied to a basic unit is constrained by a technical limitation. For example, even though there might be 30 CFL-compatible light sockets in a house, perhaps on 10 are located in areas that would be lit on a regular basis for more than a few minutes per day.
- Not Yet Adopted (%) = The percentage of the total number of measures that would be technically applicable that have not yet been converted to the efficient alternative. This parameter is equal to 1.0 minus measure saturation.
- Annual Replacement Eligibility (%) = The number of eligible measures that can be installed each year. For replace-on-fail measures this annual replacement fraction is equal to 1/base measure lifetime. For retrofit measures, this fraction essentially is 100%.

The resulting number is multiplied by the annual program participation rate to yield the number of measures installed per year. For the residential sector, the *2006 Missouri Statewide Residential Lighting and Appliance Efficiency Saturation Study,* and the *Midwest Residential Market Assessment and DSM Potential Study* (MEEA 2006)

were used to provide data on relevance, technology units per sector and the not-yet-adopted fractions. . For measures for which savings were calculated on a whole building basis, building stock information from AmerenUE was used. For many of the commercial lighting measures, for which savings were calculated on a per fixture basis, commercial lighting load was disaggregated by building type and technology type. The building type shares were taken from AmerenUE customer data. Since technology type shares were not available for the AmerenUE territory, these figures were estimated using Lawrence Berkeley National Laboratory's (LBNL) Lighting Market Sourcebook for the US. For other commercial measures, estimates were made based on AmerenUE end use load data. For the industrial analysis conducted here, ICF relied primarily on California's Industrial Existing Construction Energy Efficiency Potential Study, developed by KEMA. The values for these variables are included with the measure descriptions in 4 CSR 240-22.050_Appendix A.

- **Incentive costs** – including the financial incentive costs as well as the value of any equipment and labor associated with direct installation of measures. The incentive level was calculated as the amount required to reduce customer payback levels to 1.5 years for C&I customers and 1.0 years for residential customers. The required payback level often is the subject of considerable debate. Generally, commercial and industrial customers are observed to require rates of return on such projects of 50 percent or higher. Residential customers often appear to require even higher rate of return – on the order of 100 percent. This calculation was performed on a measure-by-measure basis and, as such, yielded a range of incentive levels for similar measures to the extent that these measures are employed in different building types. We view these calculated levels are simply approximations to be used primarily for budgeting purposes. During process of final program design, the specific incentive levels will be revisited.

- **Net-to-gross ratios** - Program cost-effectiveness is based on program net savings – savings that are attributable directly to a program after netting out so-called free riders. Net savings are accounted for in the calculation by multiplying gross program savings by what is know as the net-to-gross ratio. The net-to-gross (NTG) ratio is the ratio of the verified net savings for a program to the verified gross savings. The difference between net and gross savings is represented by the savings realized by customers who (1) would have implemented an efficiency measure even in the absence of a program incenting it (free riders) and (2) did adopt a measure that is promoted by a program after having been influenced by the program, but without taking the program incentive (free drivers or spillover). Although both effects should be accounted for in the calculation of a NTG ratio, frequently evaluations have only measured the free rider effect and thus data often are not available for the spillover effect. The effect of applying the NTG ratio, therefore, is to reduce program savings and cost-effectiveness (since program costs are not reduced by the NTG ratio).

4 CSR 240-22.050_Appendix A provides a listing of the program cost and participation estimates for each program element.

A.5. Program Screening

Once program data were assembled, the program elements were screened for cost-effectiveness using the TRC test. Conceptually, the process was the same as described above in relation to the measure screening. The key steps included:

- Calculating the value of measure benefits using the same approach as described earlier under measure screening
- Summing these benefits over all measures included in a program.
- Reducing these gross benefits by the realization rate and NTG ratios.
- Calculating the total incentive costs by summing over the number of measures projected.
- Summing the total measure incremental costs over all measures included in a program.
- Calculating the total program costs. These costs were either manually input into the cost-effectiveness model based on other utility program experience or were calculated as a fraction of total incentive costs as described above.
- Calculating the TRC test benefit-cost ratio

A.6. Portfolio Construction

Once program elements were screened, those programs passing the TRC test were passed to the portfolio construction and screening stage. This stage was designed to allow adjustment in the participation levels and program element budgets, including budgets for cross-cutting activities such as education, awareness building, training, evaluation and management: such that the total portfolio estimated energy savings, demand reduction and spending targets would be met. In addition, this step was guided by objectives to establish a foundation for subsequent years, create consumer value, and ensure portfolio diversity across end uses and customer classes.

The process of developing the final portfolio was necessarily iterative, as program element participation rates and costs were adjusted to yield a mix of program elements satisfying not only the statutory savings and spending constraints, but the Company's overall portfolio design goals and stakeholder concerns as well. Initially, the portfolio model was run with baseline assumptions regarding the rate of customer participation and energy and demand impacts and costs were calculated accordingly. Participation was then adjusted to yield a variety of alternative portfolios with different trajectories for savings and costs. Following discussions with stakeholders, two final portfolios were agreed to, labeled Moderate and Aggressive.

A.7. Risk analysis

This section describes the methodology of estimating uncertainties and subjective probabilities for AmerenUE's alternative demand side resource plans for use in the Company's IRP decision analysis. The Company is considering two demand side resource portfolios in its IRP: moderate and aggressive. The moderate portfolio is based on a minimum spending threshold and the aggressive plan is based on energy and demand savings targets.

7.3.1. Model parameter uncertainty

The first step in this process was estimating uncertainty around key assumptions in ICF's Energy Efficiency Potential Model (EEPM) that determine portfolio spending and demand and energy savings. In general, portfolio performance is a function of participation in the programs that comprise the portfolio; more participation translates into more incentives paid, more administrative costs and higher energy and demand savings. EEPM calculates annual participation using an adoption function that relates annual participation to an initial year's adoption rate, a maximum fraction of the market that a measure or program is assumed to achieve, and an annual growth rate.

The adoption function is comprised of three model parameters: the Payback Acceptance Factor refers to the theoretical participation limit as applied to a program; the Growth Rate determines how quickly the payback factor is reached; and Program Length refers to the number of years a program would be run in order to approach the payback factor. Participation would not necessarily equal the payback factor over the Program Length period; this would occur over a longer term.

ICF estimated upper and lower bounds (around the baseline cases) for each of these adoption function parameters in the moderate and aggressive portfolios for the energy efficiency and demand response program bundles.[4] The upper and lower bounds are values ICF thinks these participation parameters are very unlikely to fall below or above. Table 9 shows the lower and upper bound estimates for these parameters used in the uncertainty analysis, as well as the baseline, or base case values. Note that in the moderate portfolio there is equal uncertainty around the adoption function on either side of the baseline, whereas with the aggressive portfolio, it's less likely that participation will be higher than baseline than that it will be lower.

[4] Uncertainty around the fixed programs was not considered in this analysis because ICF expects a negligible amount of variance in the performance of these short-lived portfolio elements.

Table 9: Program participation uncertainty in the moderate and aggressive demand side portfolios

EEPM Program Adoption Function Parameter	Moderate: Energy Efficiency Programs			Aggressive: Energy Efficiency Programs		
	Lower Bound	Baseline	Upper Bound	Lower Bound	Baseline	Upper Bound
Payback Acceptance Factor	50%	60%	70%	40%	60%	70%
Growth Rate	15%	20%	25%	25%	36%	45%
Program Length (years)	13	10	7	13	10	7
EEPM Program Adoption Function Parameter	Moderate: Demand Response Programs			Aggressive: Demand Response Programs		
	Lower Bound	Baseline	Upper Bound	Lower Bound	Baseline	Upper Bound
Payback Acceptance Factor	17%	25%	33%	20%	25%	33%
Growth Rate	1%	1%	1%	2%	2%	3%
Program Length (years)	25	20	15	25	20	15

7.3.2. Develop high and low cases

The second step in this analysis involved running the portfolios through each possible scenario using the lower and upper bound estimates of the adoption function. The purpose of doing this was to decide which scenarios, based on the output data, best represent the "most likely" upper and lower limits in both portfolios for spending and energy and demand savings.

There are four possible scenarios for *each* portfolio using the lower and upper bound estimates of the adoption function, as shown in Table 10.[5] In the first scenario, all the adoption function parameters for the energy efficiency and demand response program bundles were set at their upper bounds, and then the model was rerun. The second scenario is the analog of the first--all adoption function parameter values for both bundles were set at their lower bounds. The third scenario represents a world where participation in energy efficiency programs will be high (all adoption function parameters in the energy efficiency bundle were set at their upper bounds), but participation in demand response programs will be low (all adoption function parameters in the demand response bundle were set at their lower bounds). The fourth scenario is the analog of the third, representing a world where participation will be high in demand response programs and low in energy efficiency programs.

[5] To be clear, the moderate and aggressive portfolios were analyzed separately. Data from four scenarios was analyzed for the moderate portfolio. Data from four scenarios was analyzed for the aggressive portfolio.

Table 10: Program adoption rate scenarios

Scenario	Program Bundle	
	Energy Effiency	**Demand Response**
	Adoption rate=	Adoption rate=
1	High	High
2	Low	Low
3	High	Low
4	Low	High

Model output from each of these scenarios is documented below. After analyzing this output, ICF concluded that the "high high" and "low low" data (scenarios one and two) should be used to establish the upper and lower branches in the decision tree for both the moderate and aggressive portfolios. The main rationale for this is that in either state of nature (moderate or aggressive) an increase in participation in energy efficiency programs should be accompanied by an increase in demand response program participation. In other words, there is no reason to expect that a change in participation in one of the program bundles would signal a concomitant change in participation in the opposite direction in the other bundle.

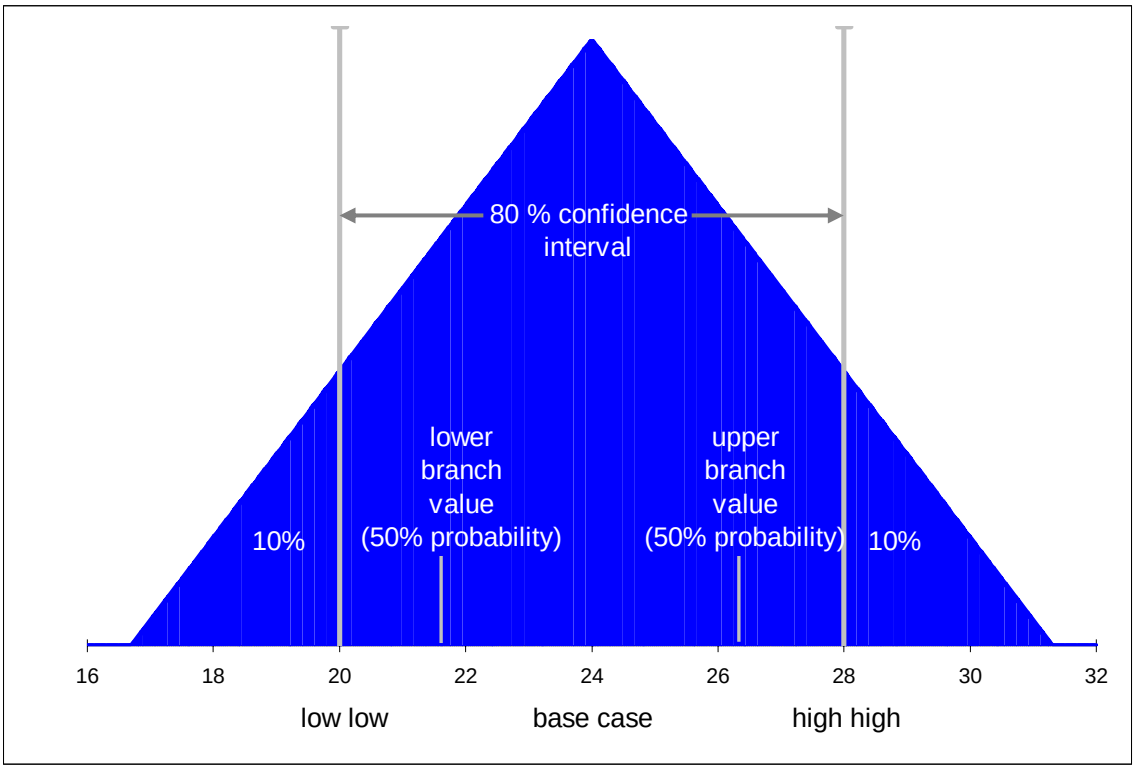
7.3.3. Estimate Uncertainties and Subjective Probabilities

The third step in this analysis used the output data from the "high high" and "low low" scenarios to calculate uncertainties around the baseline estimates for spending and energy and demand savings. For the moderate and aggressive portfolios, the "high high" and "low low" values represent 80 percent confidence intervals, by year, for cumulative program spending and energy and demand savings.

Moderate Portfolio

Confidence intervals (for spending, kW savings and kWh savings) for the moderate portfolio were derived from triangular distributions where the midpoint on the x-axis of each distribution was the base case and the "high high" and "low low" estimates were the upper and lower limits of the 80 percent confidence interval, as shown in the example for cumulative portfolio spending in 2015, below. The upper and lower branch values illustrated are the cumulative portfolio spending values that will be used in decision analysis. The sum of the expected values of the lower and upper branches equals the expected value for the distribution, which is also the base case value--around $24 million. This distribution in Figure 13 reflects the fact that with the moderate portfolio there's an equal probability of the portfolio performing above or below the baseline.

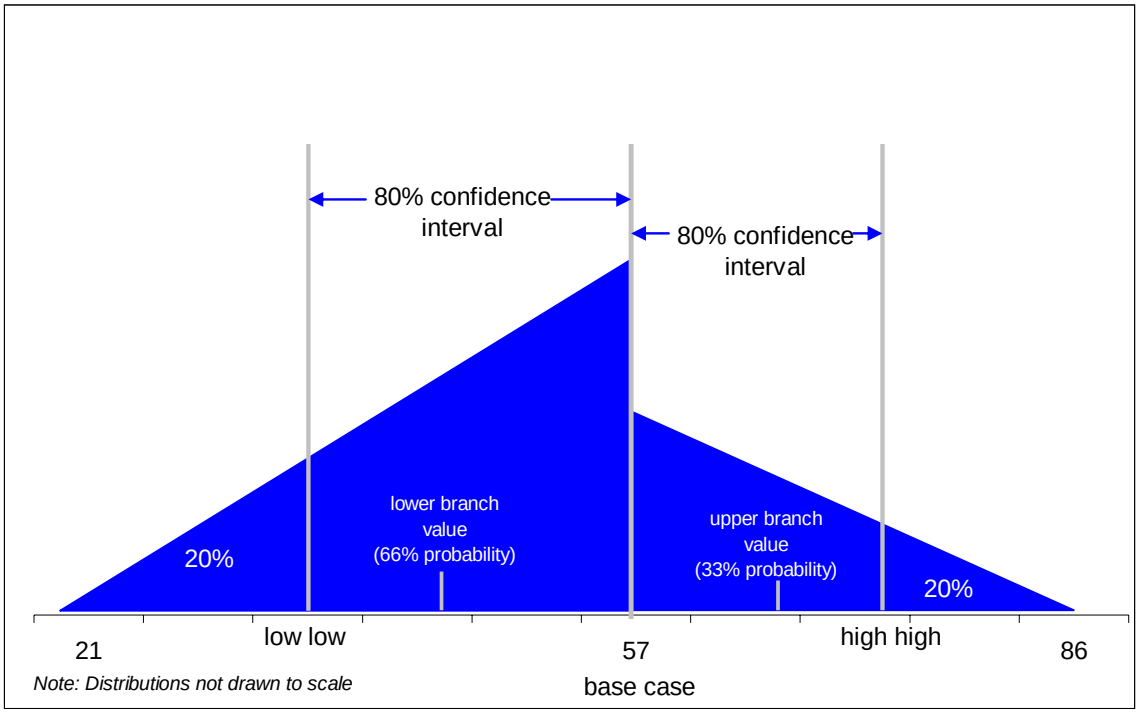
Figure 13: Moderate portfolio - Distribution of 2015 spending (cumulative) (Millions of dollars)



Aggressive Portfolio

Unlike the moderate portfolio, there is less chance the aggressive portfolio will perform above baseline than it will perform below. This is because, as the portfolio's title implies, the savings targets for this case are very high. ICF estimates that it is half as likely that the portfolio over-performs than underperforms. That is, there is a one-in-three chance the portfolio will perform above the base case and a two-in-three chance it will perform below it. This scenario required that the "high high" (above baseline) and "low low" (below baseline) cases be treated separately with unique cumulative distribution functions (CDFs), each of which equals 100 percent. An example of these distributions is illustrated below in Figure 14. The "low low" and "high high" values represent an 80 percent confidence interval around the base case value, but the interval is spread across two distributions. The sum of the expected values of the lower and upper branches equals the expected base case value, around $57 million by 2015.

Figure 14: Aggressive portfolio - Distribution of 2015 spending (cumulative) (Millions of dollars)



7.3.4. Uncertainty analysis inputs and outputs

In the uncertainty analysis methodology section above we discuss the process of developing high and low scenarios (80 percent confidence intervals) for the moderate and aggressive portfolios. During this process, the Energy Efficiency Potential Model (EEPM) was rerun four times for each portfolio to produce every possible scenario given uncertainty about program participation in the portfolios. The data output from these model runs is documented below in Table 11 and Table 12.

Table 13 and Table 14 below document the uncertainties and subjective probabilities for the upper and lower branches of the decision analysis for the moderate and aggressive portfolios.

Table 11: Moderate portfolio energy efficiency (EE) and demand response (DR) participation scenarios (cumulative)

Scenario	EE	DR	Outputs	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
1	High	High	Total $ (Incentives+Admin)	$ 14,736,034	$ 18,739,437	$ 24,026,945	$ 24,926,797	$ 25,859,691	$ 26,826,825	$ 27,164,095	$ 28,180,022	$ 29,233,222	$ 30,325,043	$ 31,332,111	$ 32,373,022	$ 33,448,926	$ 34,561,124	$ 35,710,855	$ 36,899,400	$ 38,128,085	$ 39,398,280	$ 40,711,405	$ 42,068,926
			kW savings	99,797	116,690	139,168	160,018	180,278	200,332	220,012	239,850	259,835	280,015	292,477	303,149	308,279	313,145	317,964	322,272	326,435	330,478	334,386	337,899
			kWh savings	73,586,227	158,562,333	252,684,865	340,730,882	425,962,725	510,872,397	593,699,252	677,043,220	760,861,378	844,975,833	896,012,391	933,286,181	957,693,276	980,188,875	1,002,333,708	1,022,319,499	1,040,898,229	1,058,802,163	1,075,493,680	1,089,543,211
2	Low	Low	Total $ (Incentives+Admin)	$ 11,700,834	$ 14,035,264	$ 16,680,083	$ 17,325,690	$ 17,995,508	$ 18,690,427	$ 18,972,981	$ 19,705,465	$ 20,465,375	$ 21,253,718	$ 21,950,066	$ 22,669,923	$ 23,414,104	$ 24,183,146	$ 24,977,891	$ 25,799,209	$ 26,648,003	$ 27,525,202	$ 28,431,772	$ 29,368,708
			kW savings	97,512	110,696	126,099	140,580	154,968	169,391	183,587	197,922	212,385	226,996	234,541	240,961	244,575	248,100	251,621	254,766	257,842	260,886	263,806	266,441
			kWh savings	56,214,441	114,785,330	173,795,761	229,385,774	284,020,765	338,744,997	391,970,868	445,582,335	499,560,817	553,676,243	583,372,344	605,267,031	621,040,926	635,996,009	650,860,453	664,152,630	676,550,985	688,714,890	699,851,407	709,077,416
3	High	Low	Total $ (Incentives+Admin)	$ 14,736,034	$ 18,734,543	$ 23,096,732	$ 23,963,029	$ 24,861,167	$ 25,792,300	$ 26,092,281	$ 27,069,584	$ 28,082,775	$ 29,133,157	$ 30,097,303	$ 31,094,220	$ 32,125,046	$ 33,190,577	$ 34,291,996	$ 35,430,527	$ 36,607,434	$ 37,824,027	$ 39,081,659	$ 40,381,731
			kW savings	99,797	116,670	136,816	155,311	173,193	190,844	208,099	225,486	242,995	260,676	270,612	278,754	283,641	288,260	292,830	296,887	300,796	304,583	308,231	311,483
			kWh savings	73,586,227	158,560,537	252,473,218	340,307,285	425,325,059	510,018,521	592,627,005	675,750,416	759,345,813	843,235,279	894,044,599	931,090,674	955,475,814	977,949,238	1,000,071,674	1,020,034,845	1,038,590,729	1,056,471,587	1,073,139,798	1,087,165,791
4	Low	High	Total $ (Incentives+Admin)	$ 12,287,810	$ 14,615,269	$ 18,099,253	$ 18,790,153	$ 19,506,730	$ 20,249,922	$ 20,594,272	$ 21,378,614	$ 22,192,063	$ 23,035,683	$ 23,785,802	$ 24,560,705	$ 25,361,225	$ 26,188,331	$ 27,042,921	$ 27,925,922	$ 28,838,292	$ 29,781,022	$ 30,755,138	$ 31,761,701
			kW savings	97,360	110,491	128,175	144,866	161,408	177,963	194,300	210,784	227,408	244,195	253,917	262,530	266,235	269,848	273,458	276,704	279,884	283,031	286,057	288,807
			kWh savings	54,776,963	111,742,545	169,382,253	223,606,217	276,882,470	330,238,123	382,132,492	434,404,210	487,035,649	539,799,982	568,705,102	590,082,670	605,323,165	619,779,074	634,149,743	646,986,274	658,956,813	670,704,952	681,407,773	690,248,041

Table 12: Aggressive portfolio energy efficiency (EE) and demand response (DR) participation scenarios (cumulative)

Scenario	EE	DR	Outputs	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
1	High	High	Total $ (Incentives+Admin)	$ 25,865,127	$ 35,258,997	$ 45,811,450	$ 55,741,204	$ 66,179,002	$ 69,378,359	$ 70,072,023	$ 73,459,710	$ 77,011,551	$ 80,735,512	$ 84,515,169	$ 88,471,941	$ 92,614,092	$ 96,950,271	$ 101,489,529	$ 106,245,029	$ 111,227,168	$ 116,446,847	$ 121,915,493	$ 127,645,083
			kW savings	108,554	137,484	174,476	214,749	259,975	304,382	346,050	388,342	431,605	475,870	509,240	539,534	563,169	584,541	603,621	621,277	638,616	655,903	672,928	689,215
			kWh savings	141,692,898	315,853,170	516,658,036	749,755,440	1,018,073,744	1,281,755,725	1,530,956,028	1,784,917,390	2,044,763,321	2,310,119,676	2,505,975,558	2,678,858,887	2,829,607,375	2,959,211,305	3,068,961,768	3,171,825,478	3,271,993,003	3,371,929,207	3,470,031,358	3,562,539,422
2	Low	Low	Total $ (Incentives+Admin)	$ 17,587,228	$ 21,733,859	$ 25,830,786	$ 29,185,031	$ 32,873,253	$ 34,454,782	$ 35,052,812	$ 36,739,440	$ 38,507,594	$ 40,361,225	$ 42,179,701	$ 44,080,028	$ 46,065,842	$ 48,140,940	$ 50,309,284	$ 52,578,704	$ 54,954,001	$ 57,440,211	$ 60,042,609	$ 62,766,725
			kW savings	101,201	119,187	140,465	162,280	185,879	209,467	232,059	255,039	278,541	302,586	318,010	331,879	342,453	352,419	361,730	370,409	379,031	387,715	396,300	404,546
			kWh savings	84,465,492	176,485,229	272,308,882	376,108,585	491,508,126	606,366,014	715,089,831	825,928,339	939,310,337	1,055,006,530	1,129,919,962	1,195,155,300	1,253,003,585	1,305,037,809	1,351,232,606	1,394,540,175	1,436,753,850	1,479,187,865	1,520,648,466	1,559,356,160
3	High	Low	Total $ (Incentives+Admin)	$ 25,865,127	$ 35,258,997	$ 45,064,171	$ 54,945,448	$ 65,331,961	$ 68,490,173	$ 69,140,693	$ 72,483,140	$ 75,987,545	$ 79,661,764	$ 83,389,264	$ 87,291,345	$ 91,376,149	$ 95,652,195	$ 100,128,399	$ 104,817,782	$ 109,730,593	$ 114,877,575	$ 120,269,993	$ 125,919,654
			kW savings	108,554	137,484	172,614	210,953	254,171	296,522	336,088	376,230	417,293	459,308	490,375	518,314	541,402	562,243	580,810	597,941	614,744	631,481	647,945	663,657
			kWh savings	141,692,898	315,853,170	516,490,474	749,413,797	1,017,551,322	1,281,048,364	1,530,059,475	1,783,827,294	2,043,475,231	2,308,629,037	2,504,277,713	2,676,949,069	2,827,648,271	2,957,204,446	3,066,908,751	3,169,725,241	3,269,844,460	3,369,731,248	3,467,782,846	3,560,239,194
4	Low	High	Total $ (Incentives+Admin)	$ 17,587,228	$ 21,733,859	$ 26,578,064	$ 29,980,787	$ 33,720,294	$ 35,342,969	$ 35,984,142	$ 37,716,009	$ 39,531,601	$ 41,434,973	$ 43,305,606	$ 45,260,624	$ 47,303,785	$ 49,439,016	$ 51,670,414	$ 54,005,951	$ 56,450,577	$ 59,009,483	$ 61,688,109	$ 64,492,154
			kW savings	101,201	119,187	142,327	166,076	191,684	217,326	242,021	267,151	292,853	319,148	336,875	353,099	364,221	374,718	384,541	393,745	402,904	412,137	421,283	430,104
			kWh savings	84,465,492	176,485,229	272,476,444	376,450,227	492,030,549	607,073,375	715,986,384	827,018,435	940,598,427	1,056,497,168	1,131,617,808	1,197,065,118	1,254,962,690	1,307,044,668	1,353,285,623	1,396,640,412	1,438,902,392	1,481,385,824	1,522,896,978	1,561,656,387

Table 13: Moderate portfolio, uncertainties and subjective probabilities

Decision Tree Branch	Uncertainty	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	% above baseline																				
	Total $ (Incentives+Admin)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Upper	kW	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
	kWh	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%
	% below baseline																				
	Total $ (Incentives+Admin)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Lower	kW	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
	kWh	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%
	Subjective Probabilities	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
	Total $ (Incentives+Admin)	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Upper	kW	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
	kWh	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
	Total $ (Incentives+Admin)	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Lower	kW	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
	kWh	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%

Table 14: Aggressive portfolio, uncertainties and subjective probabilities

Decision Tree Branch	Uncertainty	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	% above baseline																				
	Total $ (Incentives+Admin)	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%
Upper	kW	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
	kWh	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
	% below baseline																				
	Total $ (Incentives+Admin)	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
Lower	kW	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%
	kWh	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%
	Subjective Probabilities	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
	Total $ (Incentives+Admin)	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Upper	kW	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
	kWh	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
	Total $ (Incentives+Admin)	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%
Lower	kW	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%
	kWh	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%