



# Energy Efficiency and Demand-Response Plan

Central Illinois Light Company d/b/a AmerenCILCO

Central Illinois Public Service Company d/b/a AmerenCIPS

Illinois Power Company d/b/a AmerenIP

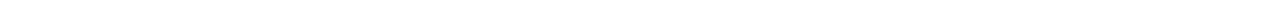
**(Ameren Illinois Utilities)**

**November 15, 2007**

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Energy Efficiency and  
Demand-Response Plan

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# 1. Executive Summary

## 1.1. Summary of Statutory Requirements.

Section 12-103 the Illinois Public Utilities Act (Act), 220 ILCS 5/12-103 requires that electric utilities implement measures to reduce energy delivered by 0.2 percent in program year 2008 (June 1, 2008 through May 31, 2009), and continuing to implement measures towards the target of 2.0 percent of energy delivered in program year 2015 (June 1, 2015 through May 31, 2016). Achievement of these targets is subject to a cost cap (or spending limit) of the greater of, 2.0% of the amount paid by retail electric customers for the year ending May 31, 2007 or an incremental annual increase of 0.5% per year of the amount paid by retail electric customers for the year ending May 31, 2007 through May 31, 2010. Under no circumstance is the amount paid by eligible retail electric customers to exceed the greater of 2.015% of the amount paid per kWh by those customers during the year ending May 31, 2007 or the incremental amount per kWh paid for these measures in 2011. Every three years beginning in November 2007, the utilities are to file plans with the Illinois Commerce Commission describing how these targets are to be met. In addition, the Act requires the Company to meet Demand-response targets.

Program Year	2008	2009	2010
Spending Limit (\$millions)	\$14	\$29	\$45
Load Reduction Target (MWH)	77,000	232,000	467,000
Peak Demand Reduction Target	5 MW	10 MW	15 MW

This Plan represents the Ameren Illinois Utilities' commitment to meeting these targets 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 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 statutory targets within the cost caps set by the Act.
- Is cost-effective at the measure, program, and portfolio level. The overall portfolio benefit-cost ratio using the Total Resource Cost test specified in the Act (and identified as the Illinois Total Resource Cost throughout this Plan) is 1.40
- 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 Illinois stakeholders and national energy efficiency experts.<sup>1</sup>

- Effectively integrates programs designed by the Department of Commerce and Economic Opportunity (DCEO or Department). The DCEO programs ensure that the offerings satisfies statutory requirements that at least 10 percent of funds are allocated to programs serving municipalities and that funds are allocated to programs that target households at or below 150% of the poverty level at a level proportionate to the households' share of total annual utility revenues.
- Lays groundwork for market transformation. All parties agree that the ultimate objective served by the programs required under the Act is the transformation of the market for energy services in Illinois, 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. Roughly seventy percent of the three-year target will come from the commercial and industrial sectors, and thirty percent from the residential sector. Total costs are split roughly evenly between residential and commercial/industrial customers.

The following three tables summarize portfolio energy savings, demand savings and costs for the three year planning period.

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<sup>1</sup>See for example, American Council for an Energy Efficient Economy Compendium of Exemplary Programs available at [http://www.aceee.org/utility/exemplary\\_programs/index.htm](http://www.aceee.org/utility/exemplary_programs/index.htm), Energy Trust of Oregon, Best Practices of Energy Efficiency Organizations and Programs available at [www.energytrust.org/library/reports/Best\\_Practices/index.html?link\\_programs\\_reports\\_lin1Page=3](http://www.energytrust.org/library/reports/Best_Practices/index.html?link_programs_reports_lin1Page=3), and *Best Practices Benchmarking for Energy Efficiency Programs*, available at <http://www.eebestpractices.com/index.asp>. Also see various program descriptions available from the Consortium for Energy Efficiency available at <http://www.cee1.org/>.

## 1. Executive Summary

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**Table 1: AIU Portfolio Summary – Energy Savings**

TOTAL ANNUAL MWH		2008	2009	2010
DR	Commercial Demand Credit	47	93	137
	Residential DR - Direct Load Control	264	530	804
<b>DR Total</b>		<b>311</b>	<b>622</b>	<b>941</b>
EE	Home Energy Performance	995	2,513	3,351
	Residential HVAC Diagnostics & Tune-Up	0	1,812	3,624
	Residential Appliance Recycling	2,426	8,897	14,559
	Residential Lighting & Appliances	10,086	22,923	45,845
	Residential Multifamily	2,792	4,189	4,189
	Residential New HVAC	343	1,543	3,086
	C&I Prescriptive	35,276	63,182	84,242
	C&I Retro-commissioning	513	1,230	1,914
	Commercial New Construction	0	102	458
	Street Lighting	4,249	4,249	4,249
	C&I Custom	5,817	15,012	24,395
	<b>EE Total</b>	<b>62,497</b>	<b>125,651</b>	<b>189,911</b>
<b>AIU Total</b>	<b>62,808</b>	<b>126,273</b>	<b>190,853</b>	

**Table 2: AIU Portfolio Summary – Peak Demand Reductions**

TOTAL ANNUAL KW		2008	2009	2010
DR	Commercial Demand Credit	2,328	4,642	6,851
	Residential DR - Direct Load Control	2,936	5,884	8,938
<b>DR Total</b>		<b>5,263</b>	<b>10,526</b>	<b>15,789</b>
EE	Home Energy Performance	57	143	190
	Residential HVAC Diagnostics & Tune-Up	0	373	746
	Residential Appliance Recycling	374	1,372	2,244
	Residential Lighting & Appliances	178	406	811
	Residential Multifamily	481	722	722
	Residential New HVAC	89	399	798
	C&I Prescriptive	8,355	14,965	19,953
	C&I Retro-commissioning	12	30	47
	Commercial New Construction	0	33	147
	Street Lighting	0	0	0
	C&I Custom	756	1,952	3,171
<b>EE Total</b>	<b>10,303</b>	<b>20,393</b>	<b>28,829</b>	
<b>AIU Total</b>	<b>15,566</b>	<b>30,919</b>	<b>44,619</b>	

## 1. Executive Summary

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**Table 3: AIU Portfolio Summary – Costs**

ANNUAL PROGRAM COSTS		2008	2009	2010
DR	Commercial Demand Credit	\$51,452	\$102,617	\$151,444
	Residential DR - Direct Load Control	\$637,326	\$851,820	\$1,087,386
<b>DR Program Total</b>		<b>\$688,778</b>	<b>\$954,437</b>	<b>\$1,238,829</b>
EE	Home Energy Performance	\$249,968	\$631,497	\$841,996
	Residential HVAC Diagnostics & Tune-Up	\$0	\$773,605	\$1,547,209
	Residential Appliance Recycling	\$787,500	\$2,887,500	\$4,725,000
	Residential Lighting & Appliances	\$1,164,261	\$2,646,047	\$5,292,094
	Residential Multifamily	\$262,684	\$394,025	\$394,025
	Residential New HVAC	\$125,665	\$565,491	\$1,130,982
	C&I Prescriptive	\$3,499,239	\$6,267,293	\$8,356,391
	C&I Retro-commissioning	\$192,206	\$461,294	\$717,569
	Commercial New Construction	\$0	\$72,000	\$324,000
	Street Lighting	\$520,000	\$520,000	\$520,000
	C&I Custom	\$561,784	\$1,449,765	\$2,355,869
<b>EE Program Total</b>		<b>\$7,363,305</b>	<b>\$16,668,518</b>	<b>\$26,205,135</b>
Portfolio-Wide Costs				
	Education Program	\$260,000	\$400,000	\$500,000
	Evaluation, Measurement and Verification	\$420,000	\$840,000	\$1,260,000
	Information Program	\$260,000	\$400,000	\$500,000
	Portfolio Administration	\$975,000	\$1,400,000	\$2,100,000
<b>Portfolio-Wide Cost Total</b>		<b>\$1,915,000</b>	<b>\$3,040,000</b>	<b>\$4,360,000</b>
<b>AIU Total</b>		<b>\$9,967,083</b>	<b>\$20,662,955</b>	<b>\$31,803,964</b>

### 1.3. The Planning Process

The Company's Plan reflects a detailed analysis process that included the economic screening of close to 1,000 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.<sup>2</sup>
- 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 and rising at 5.0% per year) This screening process was based on the Total Resource Cost test as defined

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<sup>2</sup> 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.

by the Act and referred throughout this Plan as the 'Illinois TRC test'. 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 Illinois TRC test with the ICF portfolio analysis model.
- Adjusting individual program participation estimates to achieve portfolio balance.
- Screening of the DCEO programs for cost-effectiveness and integration of the DCEO program suite into the Company’s portfolio.
- Preparation of a formal analysis of program and portfolio risk using the ICF model and the @Risk (see Appendix A for further detail) uncertainty analysis software, and readjustment of the portfolio in an effort to mitigate risk.

### 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 addressed through program design intended to minimize risk within a program and by ensuring 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 much more difficult for the Company to manage. Although risks associated with program performance can be assessed in close to real-time, the likelihood that an evaluator will determine that portfolio energy savings will fall below, meet or exceed targets cannot be

assessed. The Company is responsible for prudent management of the portfolio to ensure that programs produce the required level of energy savings based on sound assumptions regarding net measure energy savings. However, it has no control over what value an evaluator might choose to apply for the energy savings associated with any given measure. In the case of those measures accounting for large shares of portfolio energy savings, an evaluator's conclusion that the values used by the Company are not appropriate could swing the portfolio from exceeding its target to missing it. Given the inherent time lag in completing evaluations, it is likely that the Company will not have the evaluator's opinion regarding realized net energy savings until well after the three-year implementation period has ended and any corrective action could be taken to address any possible shortfalls.

The combination of these two factors we believe subjects the Company to considerable risk that cannot be managed. Good program design can prospectively work to minimize program free riders, for example, but the Company will not actually know the evaluator's estimate of free riders until the implementation period is over. We propose to work closely with the Commission Staff, the independent evaluator and stakeholders to ensure that evaluation risk is fairly balanced.

Section 3 provides a more detailed discussion of portfolio risk and risk management. The Company has gone beyond simply acknowledging these risks and has prepared a formal analysis of the impacts of uncertainty on its portfolio. Specifically, we assigned subjective probabilities to the likelihood that certain key assumptions regarding technology performance, participation and program net-to-gross ratios, and then simulated the impacts on the Company's ability to hit its energy savings targets using Monte Carlo (see Appendix A for further detail) analysis. Recognizing that this initial risk analysis was based on subjective probabilities rather than empirical data, the results of the analysis showed that the portfolio is most at risk from the evaluator concluding that the ratio of net energy savings to gross energy savings is different than assumed when preparing the Plan. However, the combined effect of performance and market risk (represented by the ratio of actual gross energy savings to planned gross energy savings) also has a major impact.

The Company has made several adjustments to its portfolio to better manage these risks:

- We have reduced the planned contribution from residential lighting measures (the single largest contributor to program energy savings). This action is consistent with recommendations from stakeholders and reduces our exposure to performance and evaluation risk with this single measure. However, given the challenges of program ramp-up and the aggressive targets, the portfolio cannot achieve its targets and stay under the cost cap without a significant contribution from this technology.
- We have built the portfolio around program elements that, for the most part, can be ramped up or down quickly as necessary based on performance.
- We are making an investment in this portfolio in program elements such as commercial new construction which cannot be expected to generate significant savings in the first three years, but which will significantly enhance technology and program diversity in the subsequent plan and work towards market transformation.
- We have used program designs which we believe reflect best practice and offer us the best opportunity to achieve expected energy savings.

Essential to this 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. Specifically, we propose the following:

- The reallocation of funds among program elements within the Residential and Business Solutions programs (excluding those elements managed by DCEO) to ensure the Ameren Illinois' Utilities ability to achieve its goals, where the change in budget for any specific program element is greater than 20%.
- Discontinuing approved program elements within the Residential and Business Solutions programs.
- Adding new program elements within the Residential and Business Solutions programs, as long as those elements pass the TRC test.
- Dismissing the Ameren Illinois' Utilities evaluation contractor under the terms of the contracts signed with that contractor, and hiring a new contractor.

The proposed portfolio represents the initial effort to design a cost-effective mix of programs with a high probability of success. Following Commission acceptance of the Plan, we will proceed with 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 the DCEO, and with input from a broad group of stakeholders, has developed a portfolio of energy efficiency and Demand-response programs that will meet these statutory requirements. The portfolio as a whole is cost-effective with an Illinois TRC test benefit-cost ratio of 1.40. The portfolio is projected to meet annual energy reduction targets in each year of the implementation period at an expected cost equal to the estimated rate cap. The portfolio also will meet the statutory Demand-response targets within the rate cap.

The Ameren Illinois portion of the portfolio comprises 75% of the proposed funding and 81% of proposed annual energy savings. Twenty-five percent of the annual funding is allocated to programs to be administered by the DCEO. Finally, 6% of the total funding is allocated to programs for low income customers. This funding also is contained within the DCEO share of funding.

The Ameren Illinois 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. Due to the expected increase in CFLs requiring disposal, Ameren Illinois Utilities will also evaluate long-term recycling solutions for the bulbs.
- Appliance turn-in and recycling program. Rebates in the range of \$30 will be provided for the turn-in of second refrigerators. The old appliances will be collected and recycled with capture/destruction of ozone-depleting substances.
- 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 and proper installation incentives. Incentives will be provided to either homeowners or HVAC dealers for the sale and proper installation of new central air conditioning systems. This program will 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.
- Single-Family All-Electric Home Performance. Incentives will be provided for a bundle of electricity-saving measures that 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.
- 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.
- 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 a

adoption of a “whole building” perspective on energy management. Specific program elements will include:

- 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 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.
  - 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. Commercial customers enrolled in this program will be notified on a day-ahead or day-of basis when a curtailment event occurs. Customers who participate will be credited for their results.
- Street Light Replacement Program. In addition to the two broad programs outlined above the Company proposes to implement a Street Light Replacement Program. This program is highly specific, targeting existing municipal street lighting owned by Ameren Illinois for upgrade to more efficient fixtures. The Company currently has a policy of replacing existing fixtures with more efficient options only when maintenance beyond lamp replacement is necessary (replace-on-fail). This program will speed the transition to modern high-efficiency street lighting by providing an incentive for the retrofit of additional fixtures. This program will focus on upgrades that can be made without affecting the spacing of poles, or other larger infrastructural changes.
  - DCEO Programs. The Company worked with the DCEO to integrate the Department’s proposed programs into the overall portfolio. The Department has designed a range of programs that address the statutory requirement that ten percent of funding be allocated to measures for units of local government and schools. The Department will also ensure that funds are allocated to programs that target households at or below 150% of the poverty level at a level proportionate to the households’ share of total annual utility revenues. To ensure that program offerings are consistent across the state, the DCEO aligned its proposed public custom and prescriptive incentive programs with the programs of Ameren Illinois and Commonwealth Edison (ComEd) with respect to eligible measures and incentive levels. As parties move into the final program design process, we will continue to ensure alignment.

## 1.6. The Program Evaluation Process

Program evaluation, measurement, and verification (EM&V) activities are central to the success of the Ameren Illinois Utilities' 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 Act requires the Company to retain an evaluation contractor to provide an annual independent evaluation of portfolio energy savings. Given statutory energy reduction targets, the evaluation process is of vital interest to the Company. Two aspects of this process are of particular concern. First, the maximum amount of funding for evaluation is capped at three percent of the total budget. This level of spending, in relative terms, is at the low end for any evaluation process that the Company's consultant, ICF International, has reviewed and, we believe, effectively precludes an evaluator from developing independent estimates of measure and program energy savings based on direct measurement. Inevitably, the evaluator will need to rely to some extent on the other evaluation studies for the values of key energy savings estimates such as gross energy savings for some set of measures. In addition, the funding levels most likely will limit the sample sizes used to estimate program energy savings and precludes a substantial process evaluation.

Second, as noted above, the evaluation process introduces risk for the program administrator. The evaluation process that we propose is designed to help mitigate the risks beyond AIU's control, while ensuring an open and independent evaluation process. The key steps in the process include:

- Development of a request-for-proposals (RFP) for evaluation services upon Commission approval of the Plan and selection of the evaluator as soon as possible.
- Certain measure savings values for common measures, and NTG ratio values are "deemed" appropriate by the Commission for use in evaluating the Ameren Illinois Utilities portfolio performance.
- Any changes in the deemed values that the evaluator believes are appropriate should be applied only prospectively. For example, if the evaluator determines that the ratio of net-to-gross savings for a program should be changed, that change should be applied to any savings booked from that point forward, but would not be used to adjust savings booked to that point.
- In calculating the ratio of net program savings to gross program savings, the evaluator shall consider both free rider and spillover effects.
- Preparation of semi-annual evaluation status reports by the evaluator.
- Within the broader collaborative effort AIU proposes, stakeholder participation in the following:
  - The development of the scope of work included in the solicitation of evaluation services.
  - The review of evaluation proposals.

- The development of evaluation protocols that address the schedule for evaluations, the contents of evaluation reports, and the appropriate methods to be applied to evaluation of different types of program elements.
- The review of semi-annual reports prepared by the evaluator.
- Funds spent on market assessment studies to better understand baseline market conditions, consumer preferences, market effects of programs, and market actor behavior (e.g., training practices of HVAC contractors) are not considered evaluation funds for purposes of the 3% cap.

## 1.7. Implementing the Plan

Achieving the Company's load reduction targets 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 the DCEO to ensure that our market sees a consistent and coordinated set of program offerings.
- We will work with ComEd to ensure that, where both utilities offer similar programs, delivery of these programs is coordinated.

The Company's implementation strategy is described in greater detail in Section 6 below.

### 1.7.1. *Overview of the Elements of Implementation*

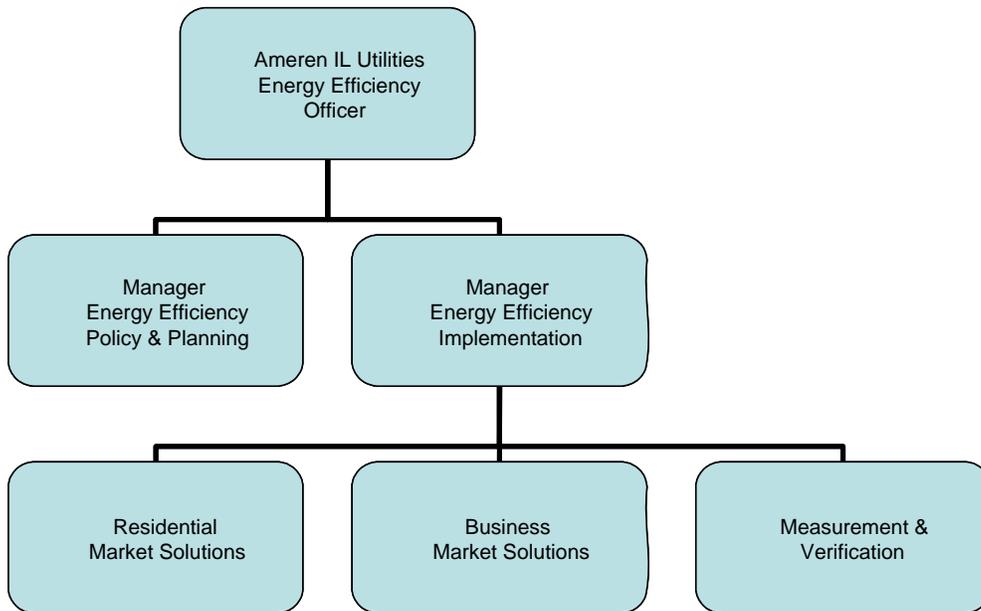
Successful implementation includes three key elements: (1) A sound implementation strategy; (2) An effective management strategy and (3) A plan for managing evaluation and quality assurance.

#### **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.



**Figure 2: AIU 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 first Plan was, by necessity based on available data that did not include detailed information on our service territories baseline characteristics. The Company intends 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. This strategy will be coordinated with the Department and ComEd as appropriate.

**Back Office Systems Development:** Back-office systems for tracking, reporting and incentive fulfillment are a critical operational component of the energy 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**

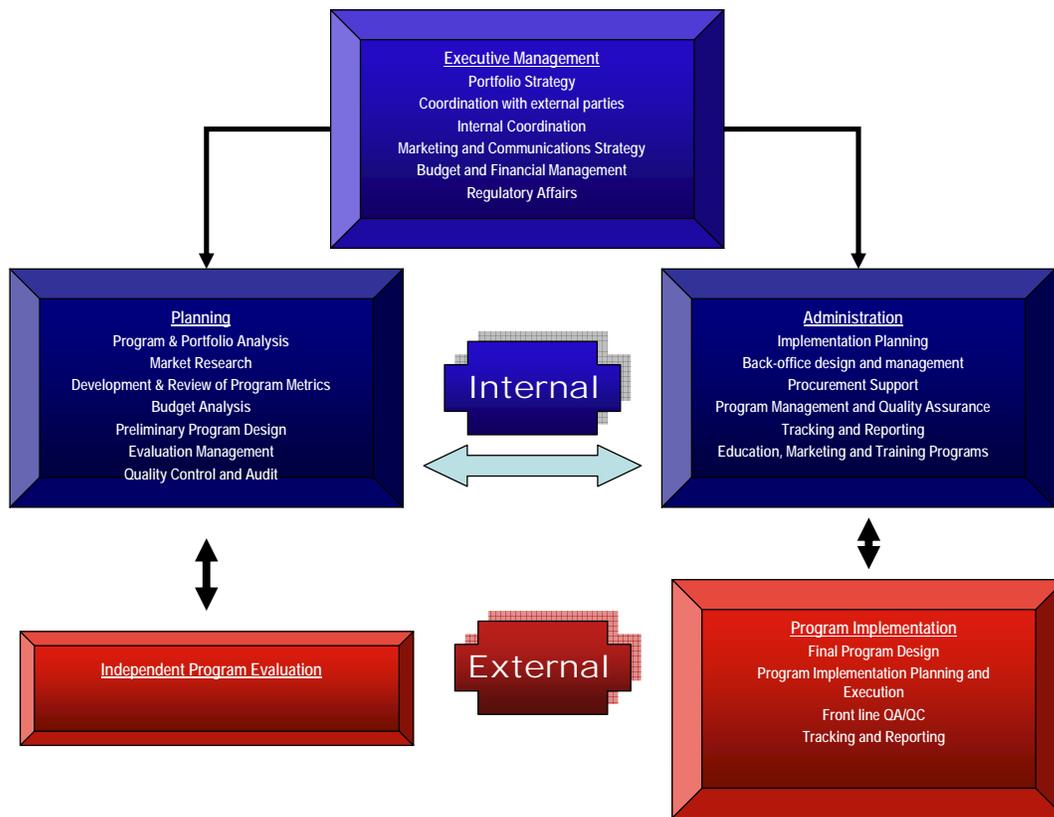
In addition to the required independent evaluation of portfolio of energy savings, the Company will implement processes to ensure that financial incentives are paid only for those projects that are expected to yield verifiable energy savings. This process will include Company review of any incentive 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 processes and for documentation of 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

On August 28, 2007 Governor Blagojevich signed the Illinois Power Agency Act requiring, in part, that the Ameren Illinois Utilities and ComEd implement energy efficiency and Demand-response programs to meet some of the most aggressive targets set for electric utilities in the country. Achievement of the annual targets is constrained by an annual rate cap. Table 4 summarizes these targets and the cap.

**Table 4: Legislative Targets**

Program Year	2008	2009	2010	2011	2012	2013	2014	2015
Energy Efficiency: Incremental % of energy delivered	0.2%	0.4%	0.6%	0.8%	1.0%	1.4%	1.8%	2.0%
Demand-response: % of prior year eligible retail peak demand	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Maximum increase in per kWh rate	0.5%	1.0%	1.5%	2.0%	2.015%	2.015%	2.015%	2.015%

Based on the Ameren Illinois Utilities estimated sales, eligible retail customer peak demand and distribution revenues, these targets correspond to the amounts shown in Table 5 for the first three years.

**Table 5: AIU Three-Year Estimated Targets**

Program Year	2008	2009	2010
Projected Energy Delivery (MWH)	38,463,000	38,865,000	39,308,000
MWH Target	77,000	232,000	467,000
Spending Limit Projection (\$M)	\$14	\$29	\$45
Estimated Charge to Recover Spending Limit (¢/kWh)	0.036¢	0.075¢	0.115¢

The Act also directs that twenty-five percent of the measures approved by the Illinois Commerce Commission as part of utility plans be implemented by the DCEO. The Company has interpreted this provision to mean twenty-five percent of the total allowed funding shall be allocated to DCEO for implementation of programs. In addition, the Act directs that a minimum of 10% of the portfolio be procured from units of local government, municipal corporations, school districts and community college districts, and that DCEO shall coordinate this procurement. Finally, the Department will also ensure that funds are allocated to programs that target households at or

below 150% of the poverty level at a level proportionate to the households' share of total annual utility revenues. Table 6 shows the proposed allocation of funding and MWH savings between the Company and the DCEO, for programs directed at municipalities, school districts and community college districts, and for low income programs.

**Table 6: MWH and Budget Allocations**

Program Year	2008	2009	2010
<b>MWH Target</b>	<b>76,967</b>	<b>155,153</b>	<b>234,457</b>
Ameren Illinois Utilities' Share	62,808	126,273	190,853
	82%	81%	81%
DCEO Share	14,159	29,062	44,387
	18%	19%	19%
Acquired from Municipal Government and Schools (included within DCEO share)	13,932	28,361	43,054
	18%	18%	18%
Low Income Share (included within DCEO share)	227	701	1,334
	0%	0%	1%
<b>Total Cost</b>	<b>\$13.3</b>	<b>\$27.7</b>	<b>\$42.7</b>
Ameren Illinois Utilities' Share	\$10.0	\$20.7	\$31.8
	75%	75%	75%
DCEO Share	\$3.3	\$7.0	\$10.9
	25%	25%	25%
Acquired from Municipal Government and Schools (included within DCEO share)	\$2.1	\$4.6	\$7.2
	16%	17%	17%
Low Income Share (included within DCEO share)	\$0.8	\$1.7	\$2.7
	6%	6%	6%

## 2.1. The Planning Context

Pursuit of these targets 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 this environment characterizes Illinois generally, the Ameren Illinois Utilities' service territory is fundamentally different from that served by ComEd. The territory spans much of the state and is characterized by much lower population density, only smaller urban centers with lower concentrations of dense commercial space, a higher proportion of all-electric residential customers and multiple media markets. Energy efficiency program customer acquisition, therefore, requires different methods, the average yield per commercial customer will be lower, and costs per unit of energy saved could easily be higher. Program implementation structure must be more distributed and will not offer the same economies of scale as would be possible in a denser urban environment. Customer awareness-building and outreach activities must be worked through more media channels, each with limited reach.

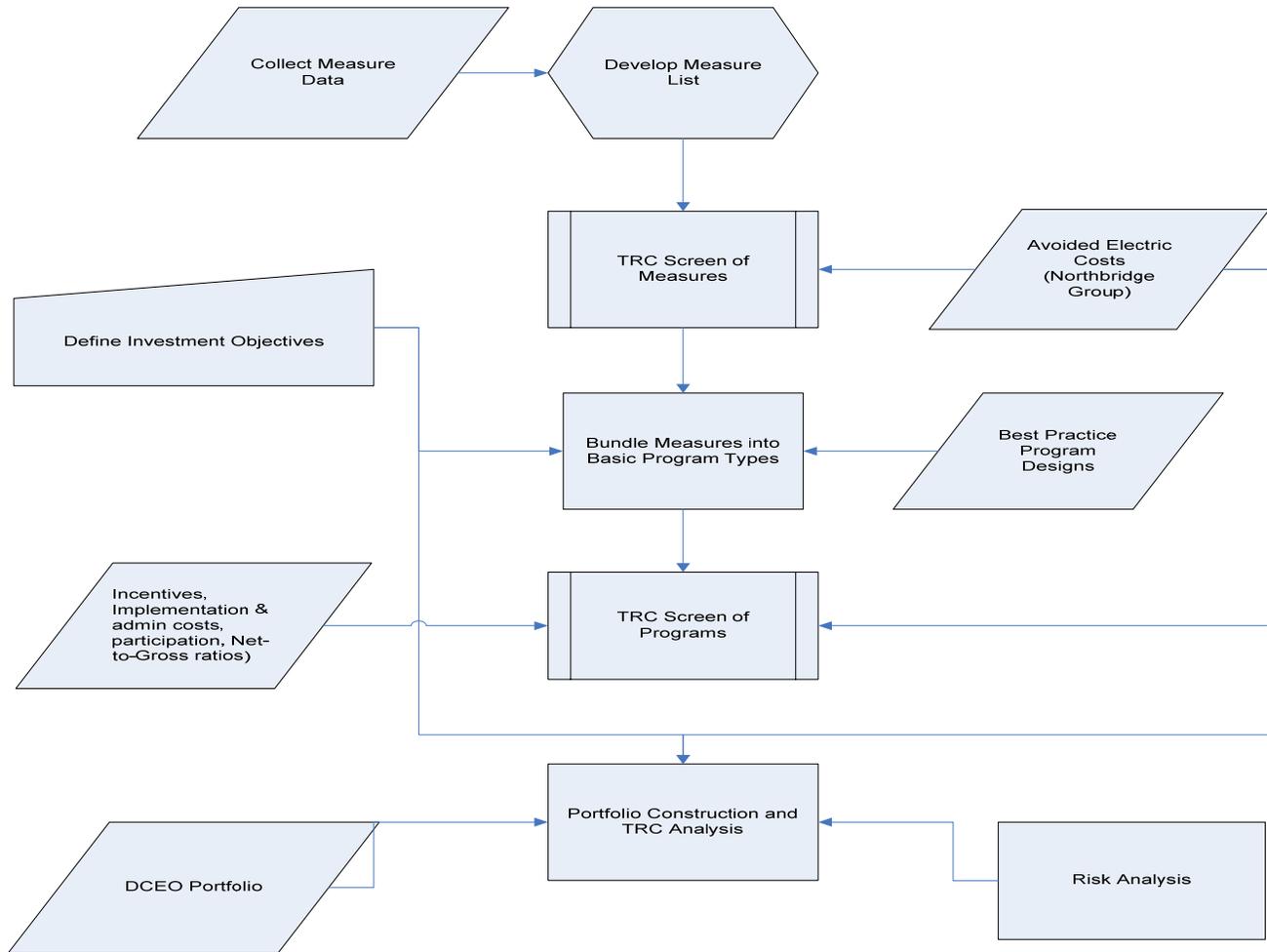
Our immediate challenge is to begin from what is essentially a cold start and quickly build the infrastructure required to meet the first three year targets. Delivering sustained value for customers means that we first must prove over the next three years our ability to design and manage effective programs. 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.

## **2.2. The Planning Process**

### ***2.2.1. 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 as defined by Illinois Act. ICF International was retained to provide support for the analysis. 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 DCEO portfolio was developed by DCEO using its own internal planning process and ICF International calculated the Illinois TRC test results using data provided by DCEO. The planning process is illustrated in Figure 4. This process is described in greater detail in Appendix A. The process is summarized below.

**Figure 4: Demand-Side Analysis Process**



**COST-EFFECTIVENESS DEFINED**

The analytical process was defined generally in the Act which requires that each utility demonstrate that its overall portfolio of energy efficiency and Demand-response measures, not including programs for low income customers, is cost-effective using the Illinois TRC test, and represents a diverse cross-section of opportunities for customers of all rate classes to participate in the programs.

The Act defines the total resource cost test as follows:

*“Total resource cost test” or “TRC test” means a standard that is met if, for an investment in energy efficiency or Demand-response measures, the benefit-cost ratio is greater than one. The benefit-cost ratio is the ratio of the net present value of the total benefits of the program to the net present value of the total costs as calculated over the lifetime of the measures. A total resource cost test compares the sum of avoided electric utility costs, representing the benefits that accrue to the system and the participant in the delivery of those efficiency measures, to the sum of all incremental costs of end-use measures that are implemented due to the program*

*(including both utility and participant contributions), plus costs to administer, deliver, and evaluate each demand-side program, to quantify the net savings obtained by substituting the demand-side program for supply resources. In calculating avoided costs of power and energy that an electric utility would otherwise have had to acquire, reasonable estimates shall be included of financial costs likely to be imposed by future regulations and legislation on emissions of greenhouse gases.*

The total resource cost (TRC) test as it is commonly understood is defined by the California Standard Practice Manual, developed by the California Public Utilities Commission (CPUC). The test was designed by the CPUC to account for all costs and benefits reasonably expected to accrue as the result of the implementation of a demand-side program. The general form of the TRC as defined by the CPUC is as follows:

TRC = Benefits/Costs

$$BTRC = \sum_{t=1}^N \frac{UAC_t + TC_t}{(1+d)^{t-1}} + \sum_{t=1}^N \frac{UAC_{at} + PAC_{at}}{(1+d)^{t-1}}$$

$$CTRC = \sum_{t=1}^N \frac{PRC_t + PCN_t + UIC_t}{(1+d)^{t-1}}$$

Where:

BTRC=Benefits of the program

CTRC=Costs of the program

UAC<sub>t</sub>=Utility avoided supply costs in year t

UIC<sub>t</sub> =Utility increased supply costs in year t

PRC<sub>t</sub>=Program Administrator (Utility) program costs in year t

PAC<sub>at</sub>=Participant avoided costs for alternative fuel in year t

UAC<sub>at</sub>=Utility avoided supply costs for the alternate fuel in year t

TC=Tax Credits

PCN=Net Participant Costs

The second term in the benefits equation represents the non-electric savings that might result from the implementation of a program designed primarily to save electricity. For example, UAC<sub>at</sub> could represent the natural gas savings that would be realized in a home as the result of implementing energy efficiency measures intended to reduce the home's cooling load. A common and potent energy efficiency measure is the sealing of a home's heating and cooling

ducts to reduce losses. While an electric utility would be interested in this measure as a way to reduce air conditioning consumption (fewer losses mean a central air conditioner needs to run less, thereby using less electricity), the measure also would reduce heating losses during the winter, thus saving gas as well.

When these other fuel savings are included in the TRC test, the net result typically is that energy efficiency measures that affect a building's heating/cooling load are more cost-effective. In some cases, measures that would not be cost-effective when considering only electric or only gas savings, become cost-effective when both sets of savings are considered.

The Illinois version of the TRC test, by explicitly stating that benefits are determined by avoided electric utility costs implies that any other fuel savings cannot be considered. The equation for the Illinois TRC test, therefore, is:

$$BTRC = \sum_{t=1}^N \frac{UAC_t}{(1+d)^{t-1}}$$

$$CTRC = \sum_{t=1}^N \frac{PRC_t + PCN_t + UIC_t}{(1+d)^{t-1}}$$

If this language is interpreted to mean that the gas savings associated with electricity-saving measures cannot be considered in calculating cost-effectiveness, a number of otherwise cost-effective energy efficiency measures will no longer be so. In fact, many measures initially considered in our analysis failed to pass the cost-effectiveness screening when their gas benefits were excluded. The net result is that several of our proposed programs are less comprehensive than would be the case if the more expansive form of the Total Resource Cost test was applied.

Our initial discussions with stakeholders on this issue suggested that, were we to include measures and programs that were cost-effective only because gas savings were included in our calculations, the programs could be rejected by the Commission. We have, therefore, excluded the value of gas savings from all cost-effectiveness calculations.

## 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 Energy Commission. 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.

Almost 1,000 measures were assessed for cost-effectiveness using a simple variant of the Illinois Total Resource Cost test that compares the incremental costs of efficiency measures with the utility avoided cost. 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. Tables 7 and 8 show the aggregate results of the measure screening

**Table 7: Results of the Measure Screening**

<b>Total number of measures screened</b>	<b>Total</b>	<b>Passing &gt; 1.0</b>	<b>% over 1.0</b>
Residential	222	107	48%
Business	732	476	65%
<b>Totals</b>	<b>954</b>	<b>583</b>	<b>61%</b>

**Table 8: Measure Types Passing the TRC Test**

Residential Measures	Commercial Measures	Industrial Measures
Compact Fluorescent Lamps (*screw-ins and pin-based)	T12 to T8 linear fluorescent lamps (various combinations)	Compressed Air Improvements (controls, optimization, VSD installations)
T12 to T8 linear fluorescent lamps (various combinations)	Compact Fluorescent Lamps (screw-ins)	Fan improvements
LED Exit Signs	HID lighting upgrades	Pump Improvements
Electroluminescent Exit Signs	LED Exit Signs	Process Heating
2nd refrigerator pick-up and recycling	Electroluminescent Exit Signs	Refrigeration
Central AC Refrigerant Charge	LED Traffic and Pedestrian Signals	Machine Drive
Domestic Hot Water Wrap	Computer Power Management	HVAC
Hot Water Pipe Insulation	Variable Speed Drives and Temperature Control for Chilled Water and Hot Water Loops	T12 to T8 linear fluorescent lamps (various combinations)
Low-Flow Showerheads	Air Handler Coil Cleaning	Compact Fluorescent Lamps (screw-ins)
Increased Duct Size	Air Handler Scheduling	HID lighting upgrades
Reduced Duct Leakage	New Packaged Air Conditioning Units	Process Controls
Correct Central AC Sizing	Variable Air Volume Retrofits	Various Sector-Specific Process Improvements
14-SEER Central AC	Commercial Refrigeration Controls and Equipment Upgrades	
Ceiling Insulation	Occupancy Sensors	
Wall Insulation	Vending Machine Controls	
Reduced Infiltration	Efficient Street Lighting	
ENERGY STAR Dishwasher		
Faucet Aerators		
ENERGY STAR Window AC		
Ground Source Heat Pump		
ENERGY STAR Ceiling Fan		
ENERGY STAR De-humidifier		
ENERGY STAR Freezer		
High-Efficiency Water Heater		
Home Demand-response		
High-Efficiency Furnace		

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 in-part on other utility program experience and on the Company's assessment of reasonable levels of participation given the composition of its market.

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 two phenomena:

- **Free Riders:** 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.
- **Spillover Effect:** Some customers are influenced to install measures for which program incentives are available, but do not claim such incentives. This is known as the “spillover” effect. A combination of program advertising, changes in the product mix of retailers as a result of programs, and word-of-mouth can lead to customers investing in energy efficiency without being prompted by program incentives. Savings associated with the spillover effect should be added to gross savings.

The combined effect of free-ridership and spillover is reflected in what is called a “net-to-gross” (NTG) ratio; a factor that is applied to an estimate of gross savings to derive the net level of savings that can be attributed to a program. Estimates of a program NTG ratio present some of the most difficult and contentious issues in energy efficiency program evaluation, and considerable uncertainty surrounds any given estimate. Our analysis of program cost-effectiveness is based on net program savings estimated using net-to-gross ratios included in the California Public Utilities Commission Energy Efficiency Policy Manual and the DEER database. These ratios are based on over a decade of evaluated program impacts and are the most consistent set of such data available.<sup>1</sup>

Once program data were compiled, each program was screened for cost-effectiveness using the Illinois TRC test. Even though the programs were constructed using measures that passed the simplified test, the addition of program costs rendered some programs not cost-effective. Only those passing the Illinois TRC test at this stage were included in the final portfolio.

As noted, the programs developed by the DCEO also were screened using the Illinois TRC test by ICF. All programs not directed to low income customers were required to pass this test before being included in the final portfolio. By Act, programs targeted at low income customers were not required to be cost-effective, and several such programs are included in the DCEO portfolio.

The two portfolios were then combined. The scales of proposed Ameren Illinois programs were adjusted such that twenty-five percent of the total budget was available for the DCEO programs. Finally, portfolio-wide costs associated with portfolio planning and administration, evaluation, awareness building, and education and training not associated with a specific program were added. The entire portfolio was then screened for cost-effectiveness.

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<sup>1</sup> As discussed elsewhere in this Plan and accompanying testimony, the Company believes that, given the uncertainty surrounding the derivation of NTG ratios, combined with the fact that the ratios developed for the DEER database are based on extensive evaluation literature and are the product of extensive review, these values should be “deemed” as the values to be applied to the gross savings estimated for the Company’s portfolio. Although the independent evaluator should, to the extent resources are available, develop additional information on net-to-gross ratios, any revised estimates of the NTG ratio should only be applied prospectively, and should not be used retrospectively to adjust the Company’s claimed net savings.

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, NTGR and realization rates.

### ***2.2.2. 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:

- August 28<sup>th</sup>: Initial meeting with stakeholders to provide an overview for the proposed planning process and solicit stakeholder program ideas.
- September 13<sup>th</sup>: A panel of national energy efficiency experts addressed a variety of questions posed by stakeholders with regard to program design, implementation and evaluation.
- September 20<sup>th</sup>: The Company reviewed the progress on the development of the energy efficiency and Demand-response programs and Illinois TRC results. The meeting involved a broader group of stakeholders throughout the state of Illinois.
- October 17<sup>th</sup>: The Company provided an overview of the initial portfolio and specific program elements, and solicited stakeholder feedback. This meeting involved not only the stakeholders with whom the Company has worked on energy efficiency and environmental issues, but also a broader range of energy efficiency service providers and electricity marketers.

A number of valuable suggestions were received from stakeholders and incorporated into the portfolio. In particular, as a result of comments received, the Company:

- Boosted estimated participation and funding for custom incentives;
- Reduced the estimated participation and budget for the residential lighting program element;

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.

### **2.3. 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.
- Appendices to the plan contain a more detailed description of the analysis process and supporting data.

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# 3. Energy Efficiency 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 energy efficiency programs that the Ameren Illinois Utilities propose in this Plan should be viewed in similar terms. The mix of programs has been structured to satisfy a variety of public policy and Company objectives, while ensuring that even if some programs under-perform, we will meet our statutory targets.

This section describes the energy efficiency program investment philosophy that has guided selection of the programs proposed. The design of our portfolio framework includes two basic steps: the definition of energy efficiency 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

Several sets of objectives define the energy efficiency investment environment. Clearly the statutory electricity and demand reduction targets are the principal drivers of portfolio construction. However, a robust portfolio will serve a variety of other important policy and corporate planning objectives as well. In developing this Plan, the Ameren Illinois Utilities have set the following design objectives:

- **Meet Our Statutory Energy Efficiency, Demand-response and Cost Targets Cost-Effectively:** Our overriding objective is to ensure that we meet the targets established in the Act.

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Program Year	2008	2009	2010
Spending Limit (\$millions)	\$14	\$29	\$45
Load Reduction Target (MWH)	77,000	232,000	467,000

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- **Include all Measures that Screen as Cost-Effective:** To ensure that the Company’s portfolio includes a wide range of program options for its customers, it includes all measures that it has screened as cost-effective using the Illinois Total Resource Cost test.
- **Provide Coverage of Hard-to-Reach Sectors:** Energy efficiency programs that are intended principally to “acquire” conservation resources 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. An explicit objective of this Plan is to ensure availability of some program services for these hard-to-reach customers.

- **Address Electric Heating where Cost-Effective:** The Ameren Illinois Utilities service territory contains a relatively high number of residential electric heating customers. These customers were particularly vulnerable to electricity price increases in January 2007. Although programs aimed at improving the thermal performance of gas-heated homes might not be cost-effective given the Illinois Total Resource Cost test, such programs are likely to be cost-effective for electrically-heated homes. The Company will design and implement one or more programs targeting efficiency improvements for our all-electric customers.
- **Inclusion of Some Educational/Informational Elements to Promote Changes in Long-term Customer Behavior:** A prudent investment strategy should lay the foundation for gradual transformation of demand-side markets. This transformation envisions informed customers acting on market signals to manage their energy use consistent with their interests. It envisions that market signals accurately reflect the real costs of consumption, that these signals reach consumers in ways that can be understood and acted upon, and that consumers have ready access to the technology needed to manage energy use. Although these early investments in education, information, training and technical assistance might not yield easily quantifiable energy savings today, they provide essential support to programs that aim to acquire measurable savings and they are the foundation for the desired market transformation. We see these activities as being particularly valuable in:
  - 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
  - Reinforcing current awareness-building efforts currently led by ENERGY STAR programs and DCEO.

Where appropriate, market preparation elements have been built into each program design. In addition, however, we propose a number of stand-alone programs.

- **Strengthen Customer Service:** Implementation of this Plan provides an important opportunity to re-establish and strengthen relationships with consumers and energy efficiency product and service suppliers. Customers often look to the Company as a source of credible information regarding energy efficiency, and it is crucial that we design and deliver programs that fulfill or exceed these expectations.
- **Minimize Rate Impacts:** Our customers have experienced significant price increases over the past year. And while the structure of the Act essentially establishes the rate impact associated with the direct costs of energy efficiency programs, the Company believes that its portfolio should, nevertheless, attempt to maximize the benefits received by consumers per ratepayer dollar spent on these programs. In particular, the Company views Demand-response programs and energy efficiency programs targeting peak use reductions as valuable market price management tools.
- **Balance Energy Efficiency and Demand-response Elements:** Directly related to the Company's objective of minimizing rate impacts is an interest in balancing the Demand-response and energy efficiency aspects of the portfolio. More than simply seeking some

balance in program spending or impacts, however, we view this objective as guiding the Company's longer-term interest in more closely integrating efficiency and Demand-response to provide our customers with a wider range of options for controlling their electric energy bills.

- **Ensure Portfolio Flexibility:** The portfolio of programs included in this Plan is the one that the Company believes will deliver the greatest value to its customers. The portfolio is based on consideration of the risks associated with design and implementation of programs and a balancing of technologies, programs and market segments intended to manage these risks. However, the Company also believes that it is essential to retain the flexibility to rebalance the portfolio as it gains implementation experience. Initial assumptions regarding customer response to specific programs will be tested and improved which likely will require that programs be modified, added or discontinued. The portfolio has been designed to include several programs that can be quickly ramped up or down based on market response.
- **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. 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 inevitably contains locational or sponsor idiosyncrasies that have contributed to its success. Finally, 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 an organization 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. Attempting to replicate these portfolios would be extremely challenging for the Ameren Illinois Utilities as it begins an energy efficiency investment program. The Company has designed a portfolio intended to reach a broad cross-section of its market using a compact set of proven program designs. Our aim is to firmly establish the infrastructure to deliver cost-effective energy savings and to use that infrastructure to support innovation over time.

### 3.3. Managing Program and Portfolio Risk

Portfolio risk is defined as the likelihood that the portfolio will fail to deliver on its objectives and, specifically, fail to meet the statutory energy reduction targets. The way in which risk is managed depends on three factors: (1) The Company's risk tolerance—in this case its tolerance for falling short of the 2008, 2009 and 2010 MWh targets; (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 Company is firmly committed to meeting the statutory targets, and believes that this can be done through May 2011. Our tolerance for the risk of not meeting the targets, therefore, is low. This implies 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.

There are four types of risks 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 using three tools:

- Picking good investments – selecting programs that are simple, flexible and that have been shown to deliver predictable results in other jurisdictions.
- Diversification - ensuring 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.
- Hedging – prudently *planning* to over-acquire energy reductions based on estimated likelihood of program under-performance for any reason. As experience is gained and results are booked, the amount of the hedge can be reduced such that ideally the final amounts acquired match the targets *adjusted for evaluation risk*.

Evaluation risk is of a fundamentally different nature. Whereas performance, technology and market risk can be re-assessed in real-time based on program experience, evaluation risk is a lagging risk. Given the lag times between booking an expected amount of savings and having that savings independently verified, it is often not possible to know if targets are met until well after the end of a planning period. More importantly, while performance risk is within the control of management, evaluation risk is not. Given the nature of this risk two management options typically are used:

- The likelihood that evaluated savings match expected savings is increased by having evaluator input to program design to ensure that planning assumptions reflect most recent evaluation experience. This also helps ensure that evaluation protocols are understood by

all parties at the outset, and the evaluation process is continuous as opposed to ex-post, allowing the Company and 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. It also means that, given evaluation uncertainty it is prudent to plan to over-acquire by some amount to protect against future evaluator disallowance of savings.

- Use of conservative assumptions for key program metrics such as the net-to-gross ratio, installation rates and, in some cases, measure savings. Thus, the risk that an evaluator will find the utility to have over-estimated program savings is mitigated by effectively discounting those savings in the planning process. However, this adjustment then requires the utility to effectively acquire additional MWh reductions within the revenue cap.

#### **3.3.1. *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. In other cases, technology risk tends to decline over time as performance characteristics become better understood. 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 market dynamics 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.

#### **3.4. Applying the Framework**

Table 9 distills the portfolio objectives we have used 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 influence the general structure of the portfolio, and the third column suggests how these portfolio design parameters shape specific program elements.

### 3. Energy Efficiency Portfolio

**Table 9: Portfolio Objectives, Design Parameters, and Design Elements**

Objective	Portfolio Design Parameters	Program Design Elements
Include All Measures that Screen as Cost-effective	<ul style="list-style-type: none"> <li>Conduct broad screening of measures by building type and end use.</li> <li>Bundle measures into consistent program shells designed to maximize delivery efficiency.</li> </ul>	<ul style="list-style-type: none"> <li>All programs passing TRC test have been included in the portfolio.</li> </ul>
Provide Coverage of Hard-to-Reach Sectors	<ul style="list-style-type: none"> <li>Portfolio should include, at a minimum, elements aimed at serving low income residential customers.</li> <li>Small commercial is a second hard-to-reach sector</li> </ul>	<ul style="list-style-type: none"> <li>DCEO will supply low income programs.</li> <li>Develop Prescriptive Incentive Program targeted at small commercial – consider specialized food service program in later years.</li> </ul>
Address Electric Heating Where Cost-Effective	<ul style="list-style-type: none"> <li>Relatively high saturation of all-electric homes – High bills can be managed through a basket of efficiency options.</li> <li>Identify measures and program options that screen well in all-electric homes and that can offer comprehensive service.</li> </ul>	<ul style="list-style-type: none"> <li>Bundle cost-effective measures into comprehensive electric home-performance program.</li> <li>Combine site visit/audit with low-cost/no-cost measures and recommendations for building shell and HVAC measures.</li> </ul>
Inclusion of Some Educational/Informational Elements to Promote Changes in Long-term Customer Behavior:	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>All program designs should address the need for specific market preparation activities (e.g. trade ally training programs, awareness-building, etc).</li> </ul>
Strengthen Customer Service	<ul style="list-style-type: none"> <li>Program designs should incorporate customer input, include branding, and link delivery to customer service functions.</li> </ul>	<ul style="list-style-type: none"> <li>Employ customer focus groups during final program design phase.</li> <li>Ensure program designs incorporate links to the Company's customer service functions.</li> </ul>
Minimize Rate Impacts	<ul style="list-style-type: none"> <li>Portfolio rate impact is prescribed in the Act</li> <li>Seek portfolio balance that ensures MWh targets are met at lowest costs</li> <li>Continually re-assess portfolio mix to maximize effectiveness – rate cap could become an issue in years 3-5.</li> </ul>	<ul style="list-style-type: none"> <li>Residential lighting and Commercial Prescriptive and Custom incentive programs expected to deliver the most energy savings at least cost and will play prominent role in the early portfolio to ensure targets are met at or below rate cap.</li> </ul>
Balance Energy Efficiency and Demand-response Elements	<ul style="list-style-type: none"> <li>Compliance with the Act heavily weights portfolio toward energy efficiency, but at least one new Demand-response program will be required.</li> </ul>	<ul style="list-style-type: none"> <li>Initial focus on simple commercial voluntary curtailment and residential AC direct load control programs. As portfolio evolves, stronger consideration will be given to initiatives that can integrate Demand-response and energy efficiency.</li> </ul>
Ensure Portfolio Flexibility	<ul style="list-style-type: none"> <li>Seek diversity across technologies and markets</li> <li>Balance the need for broad coverage and minimizing administrative complexity through too many programs</li> <li>Analyze portfolio risk and hedge against over-reliance on one program or technology.</li> </ul>	<ul style="list-style-type: none"> <li>Focus on broad designs that incorporate a wide range of measures and market segments.</li> <li>Include programs that can hit key niche markets such as all-electric homes, multi-family.</li> <li>Include designs that enable rapid acceleration/deceleration based on success against goal.</li> </ul>
Employ Best Practice Portfolio and Program Design	<ul style="list-style-type: none"> <li>Aim for initial portfolio compactness in start-up phase</li> <li>Perform risk analysis to identify portfolio vulnerabilities</li> </ul>	<ul style="list-style-type: none"> <li>Aim for simple, broad program designs that minimize delivery complexity</li> <li>Design programs from the customers' perspective</li> </ul>

## 4. The Ameren Illinois Utilities' Portfolio

This section introduces the programs that the Company proposes to include in its initial energy efficiency 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. Accordingly, the Company requests that it be given the flexibility to reallocate funding among programs consistent with the performance of the programs to ensure that it is able to meet its annualized energy savings targets within the revenue caps using cost-effective programs.

The Company is committed to achieving statutory targets at minimum cost, requiring 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:

- Minimizing the number of program offerings to reduce the costs of program administration and the market confusion that can arise from too many program requirements.
- 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 resource acquisition elements of the Plan. 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 4, the Company screened the following program elements:

**Table 10: Initial Program Concepts**

Residential Energy Efficiency Solutions	
Electric Home Energy Performance	Whole house combined direct install and rebate program for all-electric homes.
Residential Appliance Recycling	Incentive for pick-up and recycling of 2 <sup>nd</sup> refrigerators.
Residential Lighting & Appliances	Initially, a mid-stream CFL incentive programs.
Residential Multi-family	Initial focus on all-electric buildings, including a range of lighting, water heating measures and possibly HVAC measures. For gas-heated facilities, focus would be on common area and in-unit lighting measures.
Residential Low Income	Comprehensive whole-house program linked to existing weatherization programs.
ENERGY STAR Homes	Incentives to builders for construction of ENERGY STAR new homes – focus on

#### 4. Ameren Illinois Utilities' Portfolio

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Program	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.
<b>Business Energy Efficiency Solutions</b>	
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.
Street Lighting	Provide rebate to replace existing leased and customer-owned mercury vapor and incandescent street lights with high pressure sodium and metal halide lamps.
<b>Residential and Business Demand-response Solutions</b>	
Commercial Demand Credit Program	Customers receive an incentive for economic and reliability curtailments called by the Company.
Residential Direct Load Control	Installation of switches for direct control of residential central air conditioners.

The residential low income program was dropped from the Company-administered portfolio because it is a program to be included in the DCEO portion of the program. The ENERGY STAR New Homes program element did not screen as cost-effective. As the Company does not intend to promote construction of new all-electric homes, this type of program would be targeted at new gas-heated homes. Because the Illinois TRC test as currently understood does not allow the counting of gas savings, a new construction program targeted at these homes cannot meet the TRC threshold. While the ENERGY STAR New Homes program did not screen as cost-effective, the Company will continue to evaluate ENERGY STAR New Home alternatives, such as the ENERGY STAR Advanced Lighting Package, for future considerations. All other programs screen as cost-effective.

Although there are a large number of other designs that 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. 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.

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 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 offer a web-based residential energy information and audit tool that can serve as a portal for customers to 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 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.

#### 4.1.1. DCEO Programs

DCEO developed its own proposed portfolio, including estimated costs, participation and energy savings. DCEO's SEDAC and LEAP (formerly MEEP, now Large-customer Energy Analysis Program) are expected to provide additional support in the marketing the various Ameren Illinois Utilities' business solutions programs. The programs proposed by the DCEO include:

**Table 11: DCEO Program Concepts**

<b>Residential Programs</b>	
Low Income New Const. Gut Rehab	Single Family Rehab
Low Income EE Moderate Rehab (MF)	Low Income Direct Install
Lights for Learning	
<b>Public Sector Programs</b>	
Public Sector Prescriptive	Manufacturing Energy Efficiency Program
Public Sector Customized Program	Building Industry Training & Education
Public Retro-commissioning	Public Sector New Construction
Smart Energy Design Assistance Program	

The DCEO portfolio is designed to satisfy the statutory requirement that 10 percent of available funding be directed to programs for municipalities and other public buildings. As noted, the DCEO portfolio also incorporates the funding to be directed to low income customers at or below 150% of the poverty level. Per 12-103(f)2 of the Act, DCEO will be supporting building code training programs which the Ameren Illinois Utilities fully support. Additional detail on the DCEO portfolio is contained in the program templates filed by DCEO with the Commission under separate cover.

## 4.2. Proposed Programs

### 4.2.1. Portfolio Summary

The following table summarizes the proposed portfolio including both the DCEO and the Ameren Illinois Utilities programs.

4. Ameren Illinois Utilities' Portfolio

Table 12: AIU and DCEO Portfolio Summary

Program Element	TOTAL ANNUAL MWH			Total Annual kW			ANNUAL PROGRAM COSTS			TRC
	2008	2009	2010	2008	2009	2010	2008	2009	2010	
Residential										
Home Energy Performance	995	2,513	3,351	57	143	190	\$249,968	\$631,497	\$841,996	1.76
Residential HVAC Diagnostics & Tune-Up	-	1,812	3,624	-	373	746	\$0	\$773,605	\$1,547,209	1.07
Residential Appliance Recycling	2,426	8,897	14,559	374	1,372	2,244	\$787,500	\$2,887,500	\$4,725,000	1.15
Residential Lighting & Appliances	10,086	22,923	45,845	178	406	811	\$1,164,261	\$2,646,047	\$5,292,094	1.68
Residential Multifamily	2,792	4,189	4,189	481	722	722	\$262,684	\$394,025	\$394,025	1.48
Residential New HVAC	343	1,543	3,086	89	399	798	\$125,665	\$565,491	\$1,130,982	1.14
Residential DR - Direct Load Control	264	530	804	2,936	5,884	8,938	\$637,326	\$851,820	\$1,087,386	1.73
<b>Residential Solutions Total</b>	<b>16,907</b>	<b>42,406</b>	<b>75,458</b>	<b>4,114</b>	<b>9,298</b>	<b>14,450</b>	<b>\$3,227,402</b>	<b>\$8,749,985</b>	<b>\$15,018,692</b>	
Business										
C&I Prescriptive	35,276	63,182	84,242	8,355	14,965	19,953	\$3,499,239	\$6,267,293	\$8,356,391	1.37
C&I Retro-commissioning	513	1,230	1,914	12	30	47	\$192,206	\$461,294	\$717,569	1.40
Commercial New Construction	-	102	458	-	33	147	\$0	\$72,000	\$324,000	1.12
Street Lighting	4,249	4,249	4,249	-	-	-	\$520,000	\$520,000	\$520,000	1.93
C&I Custom	5,817	15,012	24,395	756	1,952	3,171	\$561,784	\$1,449,765	\$2,355,869	1.90
Commercial Demand Credit	47	93	137	2,328	4,642	6,851	\$51,452	\$102,617	\$151,444	2.50
<b>Business Solutions Total</b>	<b>45,901</b>	<b>83,867</b>	<b>115,395</b>	<b>11,452</b>	<b>21,621</b>	<b>30,169</b>	<b>\$4,824,681</b>	<b>\$8,872,970</b>	<b>\$12,425,272</b>	
Portfolio-Wide Costs										
Education Program							\$260,000	\$400,000	\$500,000	
Evaluation, Measurement and Verification							\$420,000	\$840,000	\$1,260,000	
Information Program							\$260,000	\$400,000	\$500,000	
Portfolio Administration							\$975,000	\$1,400,000	\$2,100,000	
<b>Portfolio-Wide Cost Total</b>							<b>\$1,915,000</b>	<b>\$3,040,000</b>	<b>\$4,360,000</b>	
<b>Ameren Total</b>	<b>62,808</b>	<b>126,273</b>	<b>190,853</b>	<b>15,566</b>	<b>30,919</b>	<b>44,619</b>	<b>\$9,967,083</b>	<b>\$20,662,955</b>	<b>\$31,803,964</b>	
DCEO										
DCEO Public Sector Prescriptive	10,653	23,501	33,668	2,352	5,190	7,435	\$1,649,859	\$3,643,281	\$5,193,914	1.62
DCEO Public Sector Customized Program	1,557	2,625	5,227	-	-	-	\$259,458	\$463,630	\$860,900	3.04
DCEO Public Retrocommissioning	789	798	1,589	6	7	13	\$77,837	\$78,759	\$130,677	4.47
DCEO Lights for Learning	933	1,436	1,833	-	-	-	\$103,783	\$157,519	\$209,083	2.74
DCEO Low Income New Const. Gut Rehab	-	284	479	-	-	-	\$396,144	\$666,567	\$1,188,115	0.59
DCEO Low Income EE Moderate Rehab (MF)	-	-	275	-	-	-	\$0	\$404,033	\$534,727	0.50
DCEO Single Family Rehab	-	72	121	-	-	-	\$164,324	\$272,770	\$456,324	0.32
DCEO Low Income Direct Install	227	345	458	-	-	-	\$268,107	\$404,035	\$534,730	0.63
DCEO Smart Energy Design Assistance Program	-	-	-	-	-	-	\$285,404	\$472,556	\$574,978	-
DCEO Manufacturing Energy Efficiency Program	-	-	-	-	-	-	\$25,946	\$52,506	\$104,542	-
DCEO Building Industry Training & Education	-	-	-	-	-	-	\$114,985	\$166,130	\$299,231	-
DCEO Public Sector New Construction	-	-	737	-	-	-	\$0	\$262,531	\$784,062	4.52
<b>DCEO Total</b>	<b>14,159</b>	<b>29,062</b>	<b>44,387</b>	<b>2,359</b>	<b>5,196</b>	<b>7,448</b>	<b>\$3,345,847</b>	<b>\$7,044,317</b>	<b>\$10,871,281</b>	
<b>Grand Total</b>	<b>76,967</b>	<b>155,335</b>	<b>235,240</b>	<b>17,925</b>	<b>36,115</b>	<b>52,067</b>	<b>\$13,312,931</b>	<b>\$27,707,272</b>	<b>\$42,675,245</b>	<b>1.40</b>

Consistent with best practice program design principles, the Company has designed two broad solutions-based programs, each of which will have multiple program elements. Our 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 Efficiency Solutions

The Residential Energy Efficiency 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 population in Illinois. 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 early years the program will target primarily the most cost-effective measures and all-electric 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.

##### Home Energy Performance

<b>PROGRAM</b>	Home Energy Performance
<b>Objective</b>	To offer comprehensive retrofit packages for customers considering energy efficiency improvement for existing single family homes.
<b>Target Market</b>	Existing single-family homes with central air conditioning and all-electric heating. Program could be expanded to include homes heated with natural gas at a later date.
<b>Program Duration</b>	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.
<b>Program Description</b>	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.

## 4. Ameren Illinois Utilities' Portfolio

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<b>Implementation Strategy</b>	<p>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:</p> <ul style="list-style-type: none"><li>○ Development of final detailed program design, including incentive forms, policies and procedures, training materials, marketing collateral and so forth.</li><li>○ Selection/development of appropriate home energy analysis software. The software must be capable of storing and downloading each analysis to enable tracking and verification.</li><li>○ 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.</li><li>○ 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 Ameren Illinois Utilities' (the Company) web site.</li><li>○ 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. 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.</li><li>○ Upgrades. If the customer elects to proceed with any upgrades, the implementation 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.</li><li>○ 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.</li><li>○ Verification. The first 5-10 projects performed by each contractor will be site-verified, with random verification thereafter.</li></ul>
<b>Exit Strategy</b>	<p>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.</p>
<b>Marketing Strategy</b>	<p>"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.</p>

## 4. Ameren Illinois Utilities' Portfolio

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### 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:

#### Incentives

Measure	Incentive per Unit
Ceiling Insulation (R-30)	\$170
Ceiling Insulation (R-38)	\$250
Faucet Aerators	\$4
Hot Water Insulation	\$5
Hot Water Pipe Insulation	\$150
Infiltration = 0.35 ACH	\$210
Low Flow Shower Heads	\$10
R-11 Wall Insulation	\$1,200

### Milestones

**December 2007:** – Issue RFP for implementation services

**February 2008:** - Commission Approval

**April 2008:** – Execute implementation contract

**June 2008:** – Complete detailed implementation plan

**July 2008:** – Program soft launch – recruiting of contractors; initial marketing

**August 2008:** – Full launch

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#### 4. Ameren Illinois Utilities' Portfolio

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##### 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 be 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.

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Estimated Participation

Measure	2008 Installations	2009 Installations	2010 Installations
Ceiling Insulation (R-30)	28	71	95
Ceiling Insulation (R-38)	36	90	120
Faucet Aerators	273	689	919
Hot Water Insulation	175	441	588
Hot Water Pipe Insulation	164	414	552
Infiltration = 0.35 ACH	114	288	384
Low Flow Shower Heads	246	621	827
R-11 Wall Insulation	40	102	136

Estimated Budget

Estimated Budget				
Budget Category	2008	2009	2010	Total
Total	\$249,968	\$631,497	\$841,996	\$1,723,460

\*Includes contractor training and audit costs.

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Savings Targets

Measure	Units	kWh/unit	kW/unit
Ceiling Insulation (R-30)	Home	1,400	0.1
Ceiling Insulation (R-38)	Home	1,300	0.1
Faucet Aerators	Home	240	0.0
Hot Water Insulation	Home	190	0.0
Hot Water Pipe Insulation	Home	880	0.0
Infiltration = 0.35 ACH	Home	3,700	0.3
Low Flow Shower Heads	Home	370	0.0
R-11 Wall Insulation	Home	6,800	0.6

Total Savings Targets:

MW Savings				
Year	2008	2009	2010	Total
Gross MWH	1,309	3,307	4,409	9,026
Realization Rate	0.95	0.95	0.95	-
Net-to-Gross	0.80	0.80	0.80	-
Net MWH	995	2,513	3,351	6,860

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: 1.76

## 4. Ameren Illinois Utilities' Portfolio

### Residential HVAC Diagnostics & Tune-Up

<b>PROGRAM</b>	<b>Residential HVAC Diagnostics &amp; Tune-Up</b>
<b>Objective</b>	Obtain energy and demand savings through improvement of the operating performance of residential central AC units.
<b>Target Market</b>	Residential customers with central HVAC units.
<b>Program Duration</b>	Initial implementation period is 2008 – 2011. 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 planning period.
<b>Program Description</b>	<p>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.</p> <p>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 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&amp;L currently employs CheckMe! As the basis for a similar program.</p>
<b>Eligible Measures</b>	Residential refrigerant charge and proper airflow adjustment.
<b>Implementation Strategy</b>	<p>The implementation strategy depends on the specific form of the program. While the Ameren Illinois Utilities (The Company) will determine which service to subscribe to through the implementation vendor, an example of an existing service is the Honeywell turnkey service called CheckMe!. Program Requires company recruiting and training of 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.</p> <p>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.</p>

## 4. Ameren Illinois Utilities' Portfolio

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<b>Exit Strategy</b>	<p>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.</p>								
<b>Marketing Strategy</b>	<p>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 cooling season, corresponding to the normal air conditioning advertising and sales cycle.</p>								
<b>Incentive Strategy</b>	<p>Incentives will be paid directly to HVAC technicians or, in the case of a turnkey program, to the program implementation contractor.</p> <p><b>Incentives</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Measure</th> <th style="text-align: center;">Incentive per Unit</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Central AC (Correct charge)</td> <td style="text-align: center;">\$100</td> </tr> <tr> <td style="text-align: center;">Duct Leakage 5%</td> <td style="text-align: center;">\$290</td> </tr> <tr> <td style="text-align: center;">Increase duct sizes or add new ducts</td> <td style="text-align: center;">\$710</td> </tr> </tbody> </table>	Measure	Incentive per Unit	Central AC (Correct charge)	\$100	Duct Leakage 5%	\$290	Increase duct sizes or add new ducts	\$710
Measure	Incentive per Unit								
Central AC (Correct charge)	\$100								
Duct Leakage 5%	\$290								
Increase duct sizes or add new ducts	\$710								
<b>Milestones</b>	<p>This program will likely attract the largest participation in the spring, prior to the cooling season. The following schedule assumes that the program ramps up slowly and is ready for the 2009 season.</p> <p><b>February 2008:</b> Commission approval</p> <p><b>July-September 2008:</b> Implementation contractor RFP and selection</p> <p><b>September-November 2008:</b> Final program design and protocol development</p> <p><b>November-March 2009:</b> Soft-launch - contractor recruitment/training</p> <p><b>March 2009:</b> Program launch</p>								

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#### 4. Ameren Illinois Utilities' Portfolio

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##### 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 provides a single service that focuses the evaluation efforts.

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 contractor 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 contractor 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 contractor 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 from 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 managers 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.

#### 4. Ameren Illinois Utilities' Portfolio

##### Estimated Participation

Measure	2008 Installations	2009 Installations	2010 Installations
Central AC (Correct charge)	0	808	1,616
Duct Leakage 5%	0	880	1,759
Increase duct sizes or add new ducts	0	135	271

##### Estimated Budget

Estimated Budget				
Budget Category	2008	2009	2010	Total
Total	\$0	\$773,605	\$1,547,209	\$2,320,814

##### Savings Targets

Measure	Units	kWh/unit	kW/unit
Central AC (Correct charge)	Home	1,300	0.5
Duct Leakage 5%	Home	2,200	0.0
Increase duct sizes or add new ducts	Home	1,900	0.3

*Total Savings :*

MWH Savings				
Year	2008	2009	2010	Total
Gross MWH	0	2,384	4,768	7,152
Realization Rate	0.95	0.95	0.95	-
Net-to-Gross	0.80	0.80	0.80	-
Net MWH	0	1,812	3,624	5,435

##### 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 and 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: 1.07

## 4. Ameren Illinois Utilities' Portfolio

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### Residential Lighting & Appliances

PROGRAM	Residential Lighting & Appliances
Objective	<p>Acquire cost-effective conservation by:</p> <ul style="list-style-type: none"> <li>• Increasing sales of ENERGY STAR qualified appliances and lighting products to residential customers</li> <li>• Educating consumers (build awareness and branding) through advertising and promotions to purchase ENERGY STAR qualified appliances and lighting products</li> <li>• Expanding the retail penetration of ENERGY STAR qualified appliances and lighting products</li> </ul> <p>Coordinate with and leverage current EPA/DOE ENERGY STAR efforts underway to promote qualified appliances and lighting products</p>
Target Market	<p>Residential customers of existing and new homes. 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.</p>
Program Duration	<p>Three year initial program implementation (2008-2011); Post 2011 implementation based on results of initial period. Program is assumed for planning purposes to extend throughout the planning period.</p>
Program Description	<p>The program will work primarily through retail outlets to offer financial incentives to consumers for the purchase of efficient lighting and consumer appliances. The specific strategy employed will vary by product and retailer, given different promotional opportunities and different retailer approaches to handing incentives. The lighting program element will generally follow the Change-a-Light model. A regional contractor arranges either product price buy-downs or point-of-sale rebates for products during an October promotion. Given the larger volume of Compact Florescent Lightbulbs (CFL) that the Company will need to move, it is likely that more than one promotion per year may be needed. The specific strategy will be developed based on consultation with program implementers and response to the initial 2008 Change-a-Light campaign. The strategies for appliances will be developed in conjunction with the implementation contractor but likely will be time-limited promotions during the first three years with either mail-in or instant rebates. Essential elements of the program will include:</p> <ul style="list-style-type: none"> <li>• Account management—build relationships with retailers and manufacturers</li> <li>• Field services—provide retailer support for promotions, merchandising, and networking between retailers and manufacturers</li> <li>• Retail Training—educate retail staff on the benefits of ENERGY STAR products.</li> <li>• Consumer education - work with State and retailers to promote customer education to facilitate proper CFL recycling techniques in conjunction with EPA and Illinois best practices</li> <li>• Co-op promotions and advertising –leverage existing funds for advertising and promoting products. Funds will be cost-shared up to a maximum amount.</li> <li>• Consumer incentives—provided to offset the purchase price</li> <li>• Manufacturer incentives—buy-downs to assist manufacturers' retail penetration primarily in the case of CFLs as part of the national Change-a-Light promotion.</li> <li>• In-store promotions—leverage existing retailer promotions</li> <li>• Marketing—develop and provide POP, advertising, in-store educational materials</li> <li>• Retail sales staff incentives to promote and sell ENERGY STAR products (only would apply to larger appliances)</li> <li>• Recycling – work with DCEO., local governments and local retailers to promote large scale CFL recycling programs.</li> </ul>

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<b>Implementation Strategy</b>	<p>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 Ameren Illinois Utilities (The Company) 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.</p> <ul style="list-style-type: none"><li>• 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).</li><li>• 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.</li><li>• 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.</li><li>• Develop/participate in special events/community-based outreach activities (e.g. distributing CFLs at community events, through churches, etc).</li></ul> <p>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).</p>
<b>Exit Strategy</b>	<p>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. A spike in quantity of CFL bulbs requiring recycling should be expected approximately 7 years after the start of the program as the first bulbs sold near the end of their useful service lives. In anticipation for the increased demand, the Company will work through the third party implementer to support adoption of wide-scale recycling efforts at the State, municipal and retailer level.</p>
<b>Marketing Strategy</b>	<p>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:</p> <ul style="list-style-type: none"><li>• Web placement with downloadable program information</li><li>• POP materials (clings, hang tags, shelf talkers, stickers, etc.) for use with retail promotions</li><li>• Print and radio ads – on-location radio broadcasts</li><li>• Co-op advertising</li><li>• In-store promotions staffed by field staff</li><li>• Participation in national promotions such a Change a Light</li></ul>

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##### Eligible Measures and Incentive Strategy

Measure	Incentive per Unit
13 Watt Integral CFL	\$2
18 Watt Integral CFL	\$2
25 Watt Integral CFL	\$2
ENERGY STAR Ceiling Fan	\$40
ENERGY STAR De-humidifier	\$5
ENERGY STAR Dishwasher	\$30
ENERGY STAR Freezer	\$10
ENERGY STAR Window AC (10.8 EER)	\$40
High Efficiency Water Heater - Gas, EF = 0.63	\$290

##### Milestones

December 2007: Issue implementation contractor RFP  
 February 2008: Commission approval  
 April 2008: Select implementation contractor  
 April-May 2008: Retailer/manufacturer selection and MOU; coop advertising plans for fall promotion  
 September 2008: Program launch  
 October 2008: Change a Light promotions begin

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## 4. Ameren Illinois Utilities' Portfolio

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### 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 managers and trade allies will be conducted to assess the operational conditions of the program and to identify ways to improve the program.

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### 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 made as to whether customer program inquiries should route through the existing Company 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)*

4. Ameren Illinois Utilities' Portfolio

Estimated Participation

Measure	2008 Installations	2009 Installations	2010 Installations
13 Watt Integral CFL	245,426	557,787	1,115,573
18 Watt Integral CFL	52,718	119,814	239,628
25 Watt Integral CFL	52,718	119,814	239,628
ENERGY STAR Ceiling Fan	156	354	708
ENERGY STAR De-humidifier (Existing)	465	1,058	2,116
ENERGY STAR Dishwasher (Existing)	1,265	2,876	5,751
ENERGY STAR Freezer (Existing)	907	2,062	4,124
ENERGY STAR Window AC (10.8 EER, Existing)	61	138	276
High Efficiency Water Heater - Gas, EF = 0.63	49	110	221

Estimated Budget

Estimated Budget				
Budget Category	2008	2009	2010	Total
Total	\$1,164,261	\$2,646,047	\$5,292,094	\$9,102,401

#### 4. Ameren Illinois Utilities' Portfolio

#### Savings Targets

Measure	Units	kWh/unit	kW/unit
13 Watt Integral CFL	1 compact lamp	20	0.0
18 Watt Integral CFL	1 compact lamp	40	0.0
25 Watt Integral CFL	1 compact lamp	60	0.0
ENERGY STAR Ceiling Fan	Home	80	0.1
ENERGY STAR De-humidifier	Home	270	0.1
ENERGY STAR Dishwasher	Home	190	0.0
ENERGY STAR Freezer	Home	290	0.0
ENERGY STAR Window AC (10.8 EER)	Home	260	0.2
High Efficiency Water Heater - Gas, EF = 0.63	1 water heater	2,900	0.6

#### Total Savings

MWH Savings				
Year	2008	2009	2010	Total
Gross MWH	13,271	30,161	60,323	103,755
Realization Rate	0.95	0.95	0.95	-
Net-to-Gross	0.80	0.80	0.80	-
Net MWH	10,086	22,923	45,845	78,854

#### 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 as actually submitted. Building confidence around this rate is necessary to develop reliable forecasts of participation and program impact.

#### Cost-effectiveness

Total Resource Cost Test: **1.68**

## 4. Ameren Illinois Utilities' Portfolio

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### Residential Multifamily

<b>PROGRAM</b>	<b>Residential Multifamily</b>
<b>Objective</b>	Deliver cost-effective conservation services to the multifamily housing market, with a focus on common area improvements. Secondary focus on affordable housing properties.
<b>Target Market</b>	Owners, managers and developers of market rate multifamily housing (three or more units). Focus on management companies holding multiple properties.
<b>Program Duration</b>	Initial implementation of May, 2008 – June, 2011. 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.
<b>Program Description</b>	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 analysis 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 year, recognizing that this is a 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 of cost effectiveness.

## 4. Ameren Illinois Utilities' Portfolio

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### Implementation Strategy

This program will 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.

- Set final equipment eligibility and rebate levels, and develop contractor participation agreements. Most multifamily 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.
- 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.
- Contractors sell the projects without direct involvement from the Program aside from the verification and incentive payment. Customers would be required to agree to provide access to their facilities for verification.
- 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 provide customized rebates for more complex cost-effective measures.
- 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. At AIU's discretion, projects undertaken directly by the customer would be site-verified prior to payment.
- Pay incentives. This program would not use a reservation system. Upon completion of a project, the contractor would submit an incentive application, including 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 Ameren Illinois Utilities (The Company).

### Exit Strategy

Since multifamily projects can involve a longer sales cycle, any exit from this market needs to take into account 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.

#### 4. Ameren Illinois Utilities' Portfolio

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<b>Marketing Strategy</b>	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.																		
<b>Eligible Measures and Incentive Strategy</b>	<p>Direct install and cash-back rebates</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Measure</th> <th style="text-align: center;">Incentive per Unit</th> </tr> </thead> <tbody> <tr> <td>T-8s</td> <td style="text-align: center;">\$6 - \$70</td> </tr> <tr> <td>Central AC (Correct charge)</td> <td style="text-align: center;">\$60</td> </tr> <tr> <td>DHW wrap R-4</td> <td style="text-align: center;">\$20</td> </tr> <tr> <td>LED Exit Signs</td> <td style="text-align: center;">\$20 - \$70</td> </tr> <tr> <td>Integral CFL, screw-in</td> <td style="text-align: center;">\$2</td> </tr> <tr> <td>Low Flow Shower Heads</td> <td style="text-align: center;">\$40</td> </tr> <tr> <td>Modular CFL, pin based</td> <td style="text-align: center;">\$20</td> </tr> <tr> <td>Occupancy sensor - Assume control 3 2-lamp fixtures w/T8 34W EL Ballast</td> <td style="text-align: center;">\$60</td> </tr> </tbody> </table>	Measure	Incentive per Unit	T-8s	\$6 - \$70	Central AC (Correct charge)	\$60	DHW wrap R-4	\$20	LED Exit Signs	\$20 - \$70	Integral CFL, screw-in	\$2	Low Flow Shower Heads	\$40	Modular CFL, pin based	\$20	Occupancy sensor - Assume control 3 2-lamp fixtures w/T8 34W EL Ballast	\$60
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<b>Milestones</b>	<p>December 2007: – Issue RFP for implementation services</p> <p>February 2008: - Commission Approval</p> <p>March 2008: – Execute implementation contract</p> <p>April 2008: – Complete detailed implementation plan</p> <p>June 2008: – Program launch</p>																		

**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 has three independent but coordinated component-focused evaluation efforts that need to be conducted simultaneously. These include: Audits, Direct Installs, and Rebated HVAC/Lighting. The evaluation approach for each component is as follows:

**Energy Audits**

The energy audit component will be evaluated using a participant and non-participant survey approach with multifamily(MF) owners and operators to identify the difference between the level of recommended actions taken by participants and non-participants. This approach will automatically net out the net-to-gross factors, as the non-participant actions will represent the normal market behavior in the absence of the program. The energy savings from the actions taken will be reported consistent with the adopted deemed values. Where actions are not listed in the company deemed values database, DOE-II models linked to weather normalized engineering estimates will be developed to represent applied savings. Because of the cost, on-site metering and verification efforts will not be conducted. The energy savings from the actions taken will be reported consistent with the adopted deemed values. The information from the surveys along with reviews of current evaluation literature will serve as the basis for adjusting deemed values over time.

**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.

**EM&V  
Requirements,  
Continued**

.The process evaluation will be conducted at the same time as the three studies noted above and will include interviews with program mangers and service providers, reviews of program materials, including marketing and outreach materials and reports and process evaluation questions placed on the impact evaluation survey instruments. The process study will provide recommendations to improve the program.

#### 4. Ameren Illinois Utilities' Portfolio

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##### 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 including marketing, administration and IT.

##### Estimated Participation

Measure	2008 Installations	2009 Installations	2010 Installations
T-8s	202	303	303
Central AC (Correct charge)	66	99	99
DHW wrap R-4	83	125	125
LED Exit Signs	383	574	574
Integral CFL, screw-in	12,403	18,605	18,605
Low Flow Shower Heads	64	96	96
Modular CFL, pin based	2,067	3,101	3,101
Occupancy sensor - Assume control 3 2-lamp fixtures w/T8 34W EL Ballast	153	230	230

##### Estimated Budget

Estimated Budget				
Budget Category	2008	2009	2010	Total
Total	\$262,684	\$394,025	\$394,025	\$1,050,734

#### 4. Ameren Illinois Utilities' Portfolio

#### Savings Targets

Measure	Units	kWh/unit	kW/unit
T-8s	Fixture	50 - 250	0.0
Central AC (Correct charge)	Home	350	0.2
DHW wrap R-4	Home	190	0.0
LED Exit Signs	1 sign	350 - 380	0.0
Integral CFL, screw-in	1 compact lamp	230	0.0
Low Flow Shower Heads	Home	350	0.0
Modular CFL, pin based	1 compact lamp	230	0.0
Occupancy sensor - Assume control 3 2-lamp fixtures w/T8 34W EL Ballast	1 wall box	210	0.2

Total Savings:

MWH Savings				
Year	2008	2009	2010	Total
Gross MWH	3,674	5,511	5,511	14,697
Realization Rate	0.95	0.95	0.95	-
Net-to-Gross	0.80	0.80	0.80	-
Net MWH	2,792	4,189	4,189	11,169

#### Program Metrics

The primary metrics are the energy savings. 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: 1.48

## 4. Ameren Illinois Utilities' Portfolio

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### Residential New HVAC

PROGRAM	Residential New HVAC
Objective	Promote purchase of new central air conditioners at efficiency levels above current federal standards. Promote proper sizing and installation of new residential central AC units and capture the associated savings. Transform current HVAC installation practices.
Target Market	Homeowners and dealers/installers of residential central AC units.
Program Duration	June 2008 – May 2011. Although program development will begin in the summer of 2008, the first installations are expected to occur in the spring of 2009 during the latter part of the first program year.
Program Description	<p>There are substantial energy efficiency and peak demand reduction opportunities associated with the proper sizing and installation of new central AC systems, as well as with the installation of premium efficiency equipment. Many new central AC 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 when HVAC contractors use Manual J they can improperly apply the protocol. Quality installation of central AC units also requires calibration of the refrigerant charge and airflow, and may include duct sealing to further improve operating efficiency.</p> <p>Quality HVAC installations will be delivered through a network of HVAC contractors operating in the Ameren Illinois Utilities' (the Company) service territory that have been trained in program protocols and participation processes. The New HVAC Program will promote efficiency for new residential central AC systems through the following program components:</p> <ul style="list-style-type: none"> <li>• <b>Quality installation:</b> HVAC contractors will be trained to meet a quality installation protocol that requires the proper use of Manual J for equipment sizing, as well as calibration of refrigerant charge and airflow. Contractor incentives will be provided for documented quality installations that meet the protocol. Information about duct sealing will also be provided to contractors but will not be a required component of the installation protocol.</li> <li>• <b>Premium efficiency equipment:</b> The program will also offer a standard incentive for all equipment that exceeds 13 SEER.</li> </ul> <p>By promoting proper sizing and quality installation practices, the program will build capacity among HVAC contractors to address these issues and provide a value-added service to their customers. Program marketing efforts will promote the value of these services to customers and the energy-saving benefits. Incentives will be paid to the HVAC contractor on a per job basis. The contractor has the option of passing the incentive through to the consumer in the form of a lower fee for the service/equipment, or retaining the incentive, depending on their marketing strategy.</p> <p>A coordinated recruitment and training strategy will be used to inform contractors of opportunities and incentives available through the Residential New HVAC Program and the Residential HVAC Diagnostics and Tune-Up Program.</p>

## 4. Ameren Illinois Utilities' Portfolio

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<b>Eligible Measures</b>	<p>The Company will reserve the right to revise eligible measures as needed in accordance with current market conditions, technology development, EM&amp;V results, and program implementation experience.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Measure</th> <th style="text-align: center;">Incentive per Unit</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Ground Source Heat Pump</td> <td style="text-align: center;">\$600</td> </tr> <tr> <td style="text-align: center;">Size AC units to 100% of Manual J</td> <td style="text-align: center;">\$120</td> </tr> <tr> <td style="text-align: center;">ENERGY STAR Central AC (14 SEER)</td> <td style="text-align: center;">\$90</td> </tr> </tbody> </table>	Measure	Incentive per Unit	Ground Source Heat Pump	\$600	Size AC units to 100% of Manual J	\$120	ENERGY STAR Central AC (14 SEER)	\$90
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<b>Implementation Strategy</b>	<p>The value of this program depends critically on current practice within the Companies territory. Therefore, before initiating this program, the Company will undertake a simple market study of current sizing practices.</p> <p>The Company will 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:</p> <ul style="list-style-type: none"> <li>• <b>Contractor recruitment and training:</b> The implementation contractor will recruit HVAC contractors and arrange for them to participate in the required training that will address proper sizing and quality installation protocols. Contractor recruitment and training will be coordinated with the Companies Residential HVAC Diagnostics and Tune-Up, so that contractors and their customers perceive the two programs as a single offering covering new and existing equipment.</li> <li>• <b>Customer recruitment:</b> The primary customer recruitment mechanism will be the direct marketing activities of participating HVAC contractors. Program information will also be posted on the Company's web site.</li> <li>• <b>Project implementation:</b> Participating HVAC contractors will ensure proper equipment sizing and provide quality installation services according to program protocols.</li> <li>• <b>Incentive application:</b> HVAC contractors will submit incentive applications for qualifying services performed, as well as for any premium efficiency equipment installed. The Company's implementation contractor will perform a QA/QC review of all applications to ensure that required information and documentation has been provided.</li> <li>• <b>Incentive payment:</b> HVAC contractors will receive a per-job incentive for approved applications.</li> <li>• <b>Project verification:</b> The Company will reserve the right to site-verify work conducted by participating HVAC contractors prior to approval and payment of incentives.</li> </ul>								
<b>Exit Strategy</b>	<p>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.</p>								

## 4. Ameren Illinois Utilities' Portfolio

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### Marketing Strategy

The Residential HVAC 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. Key elements of the marketing strategy will include:

- **Direct consumer marketing:** To increase consumer awareness about the value of proper sizing, quality HVAC installations, and premium efficiency equipment, the Company will market the program through bill stuffers and other direct mail approaches. Customers will be directed to the website as the primary source of information.
- **Mass market advertising:** During special promotions the Company will deploy mass market advertising (radio/newspaper/television) to promote services provided through the program.
- **Cooperative advertising:** The Company will develop co-branded advertising templates (brochures, customer postcards, etc.) for participating HVAC contractors to use in their marketing efforts.

### Incentive Strategy

Incentives will be paid to participating HVAC contractors on a per job basis for both the new HVAC systems and quality installations. Contractors will have the option of passing the incentive through to the consumer in the form of a lower product price or fee for the service, or retaining the incentive. This structure provides an added incentive to contractors to develop compelling sales strategies.

As the New HVAC Program evolves beyond the initial ramp-up period and ongoing EM&V activities track program performance the Company may adjust incentive levels based on implementation experience.

Measure	Incentive per Unit
Ground Source Heat Pump	\$600
Size AC units to 100% of Manual J	\$120
ENERGY STAR Central AC (14 SEER)	\$90

Note that these incentive levels are in most cases approximations based on the per measure incentives calculated within the cost-effectiveness model. The incentive budget shown below is drawn from the model's more detailed measure level calculations. Therefore, multiplying the per unit incentives shown here by estimated participation will not equal the program element's incentive budget.

### Milestones

This program will likely attract the largest participation in the spring, prior to the cooling season. The following schedule assumes that the program ramps up slowly and is ready for the 2009 season.

**December 2007:** Issue RFP

**February 2008:** Commission approval

**July 2008:** Implementation contractor selection

**October-December 2008:** Final program design and protocol development

**January 2009:** Soft-launch - contractor recruitment/training

**March-May 2009:** Active customer recruiting by contractors

**June 2009:** Program launch

## 4. Ameren Illinois Utilities' Portfolio

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<b>EM&amp;V Requirements</b>	<p>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.</p> <p>The evaluation effort will involve an assessment of the degree of change in the sizing of installed units and the increase in the installation of SEER-14 or higher units, above what would have occurred in the market without the program.</p> <p>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.</p> <p>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.</p> <p>For participants (trade allies and customers) who install more energy efficient equipment, interviews and tracking system reviews will be conducted to determine the SEER that would have been installed without the program and the SEER that was installed as a result of the program to get at the net SEER unit installs that are caused by the program and the SEER rating differences. This data will then be modeled to reflect the typical difference between the pre and post program net changes in unit decisions, practices and energy consumption. If added funding is available participating households will be surveyed to obtain use information that will be used to calibrate the models.</p> <p>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 managers 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.</p>
<b>Administrative Requirements</b>	<p>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.</p>

#### 4. Ameren Illinois Utilities' Portfolio

##### Estimated Participation

Note the estimated participation figures shown below are rounded estimates calculated as function of an assumed participation rate.

Measure	2008 Installations	2009 Installations	2010 Installations
Ground Source Heat Pump	7	32	65
Size AC units to 100% of Manual J	210	946	1,893
ENERGY STAR Central AC (14 SEER)	395	1,777	3,554

##### Estimated Budget

Estimated Budget				
Budget Category	2008	2009	2010	Total
Total	\$125,665	\$565,491	\$1,130,982	\$1,822,138

##### Savings Targets

Measure	Units	kWh/unit	kW/unit
Ground Source Heat Pump	Home	9,800	0.7
Size AC units to 100% of Manual J	Home	1,600	0.0
ENERGY STAR Central AC (14 SEER)	Home	300	0.3

##### Total Savings:

MWH Savings				
Year	2008	2009	2010	Total
Gross MWH	451	2,030	4,060	6,542
Realization Rate	0.95	0.95	0.95	-
Net-to-Gross	0.80	0.80	0.80	-
Net MWH	343	1,543	3,086	4,972

##### Program Metrics

The primary program metrics are estimated 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 Company's service territory. However, the final implementation plan should set metrics based on better information regarding market size.

#### 4. Ameren Illinois Utilities' Portfolio

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Cost-  
effectiveness

Total Resource Cost Test: 1.14

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## 4. Ameren Illinois Utilities' Portfolio

### Residential – Appliance Recycling Program

<b>PROGRAM NAME</b>	<b>Residential – Appliance Recycling Program</b>										
<b>Objective</b>	Promote the retirement and recycling of secondary, inefficient refrigerators from households by offering a turn-in incentive and free pickup of working equipment, as well as information and education on the cost of keeping an inefficient unit in operation.										
<b>Target Market</b>	Residential customers with working secondary refrigerators manufactured before 1993. All targeted customers taking delivery service from the Ameren Illinois Utilities (The Company) are eligible for this program regardless of their choice of supplier.										
<b>Program Duration</b>	Initial program implementation period is three years, commencing in June, 2008 and ending in May, 2011. Program is assumed to extend throughout the planning period.										
<b>Program Description</b>	<p>The Company will contract with an appliance recycling company to provide turnkey implementation services that include verification of customer eligibility, scheduling of pick-up appointments, appliance pickup, recycling and disposal activities, and incentive processing. In contractor selection, preference will be given to appliance recycling companies that have recycling/disposal facilities located in Illinois, or that are willing to construct such facilities given the anticipated volume resulting from the program. Recycling/disposal practices will be designed to prevent the release of chlorofluorocarbons (CFCs).</p> <p>Turnkey program implementation through an appliance recycling contractor will simplify program delivery, reduce the Companies administrative costs, and ensure a streamlined participation process. The program will be designed to minimize barriers to participation by offering incentives, convenient scheduling of appointments, and cost-free pickup of qualifying equipment.</p>										
<b>Eligible Measures</b>	<p>The measure listed below has been utilized for planning purposes, but the Company will reserve the right to revise eligible measures as needed in accordance with current market conditions, technology development, EM&amp;V results, and program implementation experience.</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #cccccc;"> <th style="padding: 5px;">Measure</th> <th style="padding: 5px;">Incremental Measure Cost</th> <th style="padding: 5px;">Annual kWh Savings</th> <th style="padding: 5px;">Coincident Peak kW Savings</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">Refrigerator recycling</td> <td style="padding: 5px;"><b>\$50</b></td> <td style="padding: 5px;"><b>1,900</b></td> <td style="padding: 5px;"><b>0.3</b></td> </tr> </tbody> </table>			Measure	Incremental Measure Cost	Annual kWh Savings	Coincident Peak kW Savings	Refrigerator recycling	<b>\$50</b>	<b>1,900</b>	<b>0.3</b>
Measure	Incremental Measure Cost	Annual kWh Savings	Coincident Peak kW Savings								
Refrigerator recycling	<b>\$50</b>	<b>1,900</b>	<b>0.3</b>								
<b>Implementation Strategy</b>	<p>Key elements of the Appliance Recycling Program implementation strategy include:</p> <ul style="list-style-type: none"> <li>• <b>Outsourcing implementation:</b> The Company will issue an RFP to regional/national appliance recycling companies to provide comprehensive, turnkey implementation services from eligibility verification to proper disposal/recycling of turned-in refrigerators.</li> <li>• <b>Customer education/recruitment:</b> The Company will develop and implement the marketing strategy. There will be strong consumer marketing and education components emphasizing how much it costs to operate that old, secondary refrigerator, as well as the availability of program incentives and pick-up services.</li> </ul>										

## 4. Ameren Illinois Utilities' Portfolio

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### Marketing Strategy

The program will employ strong consumer education and marketing components emphasizing the savings associated with retiring old, inefficient refrigerators, and the importance of ensuring proper disposal/recycling. Marketing materials will also include messaging about the benefits of ENERGY STAR qualified new equipment, as some secondary refrigerators will eventually be replaced with new equipment. The program will leverage ENERGY STAR promotional resources such as the national Refrigerator Retirement Promotion (July – September) and the Refrigerator Retirement Savings Calculator. Call Center staff will be trained and provided with program collateral.

Anticipated marketing materials will include:

- Web content
- Bill stuffers and other direct mail
- Limited mass market advertising around special promotions

### Incentive Strategy

In addition to free pick-up of eligible equipment, the Program will provide turn-in incentives. As the Appliance Recycling Program evolves beyond the initial ramp-up period and ongoing EM&V activities track program performance, the Company may revise incentive amounts as the market dictates. However, the following expectations and assumptions have been utilized for planning purposes, including the base rebate levels listed below:

Measure	Incentive per Unit
Refrigerator recycling	\$50

### Milestones

December 2007: Issue appliance recycler RFP  
February 2008: Commission approval  
February – March 2008: Select appliance recycling firm  
May 2008: Finalize program protocols, procedures  
June 2008: Program launch  
July-September 2008: ENERGY STAR refrigerator retirement campaign

## 4. Ameren Illinois Utilities' Portfolio

<b>EM&amp;V Requirements</b>	<p>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 removing old inefficient units from the grid.</p> <p>The evaluation approach will involve a two step process in which energy savings will be estimated for the program in the first step, and then adjusted in the second step to account for actual consumption saved. The first step will involve an estimate based on survey data obtained from participants, linked to energy consumption information from the Association of Home Appliance Manufacturers (AHAM). The survey data will focus on in-home use, use frequency and the environment in which the unit is stored. This information will be used to adjust the energy consumption information obtained from AHAM for each model assessed. It is projected that the first year evaluation will use a census of the units picked up to establish the energy savings levels for the program, followed by years in which sampling approaches or a census approach will be used depending on pick up volume and the representativeness of a sample approach. The energy estimation approach will account for replaced units or the rotation of secondary units within the home because of the purchase of a new or used unit to replace the recycled unit.</p> <p>The net to gross factor will be calculated using participant response information about what they would have done without the unit being picked up by the program.</p> <p>If evaluation funds are available, a sample of picked up units will be acquired that represents the population of units picked up by the program. For refrigerators, these units will be filled with liquids to match the use conditions reflected from the participant survey and metered to acquire energy use data. In these tests, the units will have their doors opened and closed each day consistent with the frequency of this occurrence as identified in the participant survey.</p> <p>The energy savings will be calculated by adjusting the AHAM data to account for efficiency degradation, (typically noted to be about 1% per year after the first year) and the expected impact of the door opening and closing while in the home use condition. If the metered sampling approach can be funded, the savings will be adjusted to account for the metered assessment.</p> <p>During the survey with participants the evaluation will collect satisfaction and process data. The evaluation will also conduct process interviews with the program mangers and the implementation contractor. The evaluation will provide recommendations for improving the program.</p>								
<b>Administrative Requirements</b>	<p>The Company will be responsible for developing the appliance recycling contractor RFP and contractor selection, developing and implementing the marketing strategy, and monitoring contractor and goal performance. Ameren Illinois Utilities, Commonwealth Edison and the Department of Commercial and Economic Opportunity could collaborate on vendor selection to maximize economies of scale.</p> <p>The implementation contractor will be responsible for addressing customer inquiries received directly or referred by the Company, and for program tracking and reporting activities.</p>								
<b>Estimated Participation</b>	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #cccccc;"> <th style="padding: 5px;">Measure</th> <th style="padding: 5px;">2008 Installations</th> <th style="padding: 5px;">2009 Installations</th> <th style="padding: 5px;">2010 Installations</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">Refrigerator recycling</td> <td style="padding: 5px;">3,750</td> <td style="padding: 5px;">13,750</td> <td style="padding: 5px;">22,500</td> </tr> </tbody> </table>	Measure	2008 Installations	2009 Installations	2010 Installations	Refrigerator recycling	3,750	13,750	22,500
Measure	2008 Installations	2009 Installations	2010 Installations						
Refrigerator recycling	3,750	13,750	22,500						

4. Ameren Illinois Utilities' Portfolio

<b>Estimated Budget</b>	<b>Estimated Budget</b>				
	<b>Budget Category</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>Total</b>
	<b>Total</b>	<b>\$787,500</b>	<b>\$2,887,500</b>	<b>\$4,725,000</b>	<b>\$8,400,000</b>
<b>Savings Targets</b>	<b>Measure</b>	<b>Units</b>	<b>kWh/unit</b>	<b>kW/unit</b>	
	<b>Refrigerator recycling</b>	<b>1 refrigerator</b>	<b>1,900</b>	<b>0.3</b>	
	Total Savings:				
<b>Other Program Metrics</b>	<b>MWH Savings</b>				
	<b>Year</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>Total</b>
	<b>Gross MWH</b>	<b>7,298</b>	<b>26,758</b>	<b>43,785</b>	<b>77,840</b>
	<b>Realization Rate</b>	<b>0.95</b>	<b>0.95</b>	<b>0.95</b>	<b>-</b>
	<b>Net-to-Gross</b>	<b>0.35</b>	<b>0.35</b>	<b>0.35</b>	<b>-</b>
	<b>Net MWH</b>	<b>2,426</b>	<b>8,897</b>	<b>14,559</b>	<b>25,882</b>
<b>Cost-effectiveness</b>	Total Resource Cost Test: 1.15				

### ***4.2.3. Business Energy Efficiency Solutions***

Like the Residential Energy Efficiency Solutions program the Ameren Illinois Utilities' Business Energy Efficiency 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 lighting and motors retrofits. 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 Efficiency 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 Ameren Illinois Utilities' 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.

## 4. Ameren Illinois Utilities' Portfolio

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### C&I Custom Incentive

PROGRAM	C&I Custom Incentive
<b>Objective</b>	To acquire energy 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.
<b>Target Market</b>	<p>All customers are eligible for this program, however the program will primarily be targeted at customers on Rate DS-4, and secondarily will be targeted at customers on Rate DS-3. This program is open to all existing commercial, institutional and industrial customers of rate class DS-4 and DS-3 with cost-effective efficiency opportunities for which prescriptive incentives are not available..</p> <p>Rate DS-3 General Delivery Service; and Rate DS-4 Large General Delivery Service</p>
<b>Program Duration</b>	Initial program implementation period is three years, commencing in June, 2008 and ending in May, 2011. Program is assumed to extend throughout the planning period.
<b>Program Description</b>	<p>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 typically 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&amp;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.</p> <p>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. 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.</p> <p>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.</p> <p>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.</p>

#### 4. Ameren Illinois Utilities' Portfolio

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<b>Implementation Strategy</b>	<p>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. Companies approval will be required for any incentive application exceeding a preset limit defined by the Company.</p> <p>Coordination with the Company 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.</p> <p>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.</p>
<b>Exit Strategy</b>	<p>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.</p>
<b>Marketing Strategy</b>	<p>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.</p> <p>Outreach and training for trade allies is essential since this group, including energy service companies, will sell most projects.</p> <p>Common to all programs, a clear web presence for the program is important. Business center staff should be trained and provided with program collateral.</p>

## 4. Ameren Illinois Utilities' Portfolio

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<b>Eligible Measures and Incentive Strategy</b>	<p>All cost-effective energy efficiency measures (majority of energy savings must be electricity at the site) in the facilities of eligible customers.</p> <p>Incentives will be based on per-kWh value, subject to certain caps as described below. The incentive amount is subject to modification as needed to balance the program's financial requirements and savings targets. Baseline incentives will be \$0.05/kWh for custom lighting projects (for technologies not identified in the Prescriptive Program) and \$0.08/kWh for all other custom projects.</p> <p>Caps that would reduce the total incentive amount include:</p> <ul style="list-style-type: none"><li>• The incentive for each measure may not exceed 50% of the incremental cost for retrofits and 100% of the incremental cost for replacement.</li><li>• Total incentive may be reduced if the project's energy savings provide the customer with a simple payback below one year. This level may be adjusted based on discussions with the evaluator in an effort to minimize free-ridership.</li><li>• Total incentive may be reduced if it exceeds a maximum per-project incentive cap that the Company may establish during the final program design process.</li></ul> <p>The Company may also elect to offer, as part of the Custom Program, an energy efficiency RFP process for large projects that would exceed \$500,000 in incentive costs. In an RFP solicitation, customers or third party entities would be allowed to develop proposals and submit them to the Company for consideration, and the incentive cost would be proposed as part of that proposal.</p> <ol style="list-style-type: none"><li>1. All incentives are contingent on Company (or its designated implementation contractor's) review and acceptance of savings estimates, and are subject to pre-installation and post-installation verification.</li></ol>
<b>Milestones</b>	<p><b>December 2007:</b> Draft and distribute Implementation Vendor RFP (jointly with the Prescriptive Incentive Program)</p> <p><b>February 2008:</b> Commission approval</p> <p><b>February-March 2008:</b> Implementation contractor selection</p> <p><b>April-May 2008:</b> Final program design, measure selection, and savings determination</p> <p><b>June 2008:</b> Program launch</p>

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### 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. 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 can not 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.

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 more risk of changed savings estimates (compared to other programs in the portfolio) because of the non-standard nature of the measures covered and the potential size of the projects.

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 managers and account reps and coordinated with the impact evaluation results to identify recommendations for program improvements.

#### 4. Ameren Illinois Utilities' Portfolio

##### 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

Measure	2008 Installations	2009 Installations	2010 Installations
Compressed Air	2,627,959	6,781,830	11,020,474
Pumps	2,577,283	6,651,052	10,807,960
Fans	1,581,264	4,080,682	6,631,108
Other	867,870	2,239,663	3,639,453

##### Estimated Budget

Estimated Budget				
Budget Category	2008	2009	2010	Total
Total	\$561,784	\$1,449,765	\$2,355,869	\$4,367,418

#### 4. Ameren Illinois Utilities' Portfolio

Savings Targets	<table border="1"> <thead> <tr> <th colspan="5">MWH Savings</th> </tr> <tr> <th>Year</th> <th>2008</th> <th>2009</th> <th>2010</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Gross MWH</td> <td>7,654</td> <td>19,753</td> <td>32,099</td> <td>59,507</td> </tr> <tr> <td>Realization Rate</td> <td>0.95</td> <td>0.95</td> <td>0.95</td> <td>-</td> </tr> <tr> <td>Net-to-Gross</td> <td>0.80</td> <td>0.80</td> <td>0.80</td> <td>-</td> </tr> <tr> <td>Net MWH</td> <td>5,817</td> <td>15,012</td> <td>24,395</td> <td>45,225</td> </tr> </tbody> </table>	MWH Savings					Year	2008	2009	2010	Total	Gross MWH	7,654	19,753	32,099	59,507	Realization Rate	0.95	0.95	0.95	-	Net-to-Gross	0.80	0.80	0.80	-	Net MWH	5,817	15,012	24,395	45,225
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Program Metrics	<p>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 may result in formal program review and possible revision.</p>																														
Cost-effectiveness	<p>Total Resource Cost Test: 1.90</p>																														

## 4. Ameren Illinois Utilities' Portfolio

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### C&I Prescriptive Incentive

PROGRAM	C&I Prescriptive Incentive
Objective	To acquire energy 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 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 June, 2008 and ending in May, 2011. 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	<p>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.</p> <p>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 Ameren Illinois Utilities (The Company) 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.</p> <p>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.</p>
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.

#### 4. Ameren Illinois Utilities' Portfolio

<p><b>Marketing Strategy</b></p>	<p>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.</p>										
<p><b>Eligible Measures and Incentive Strategy</b></p>	<p>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 1.5-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.</p> <p>Rebates will be provided upon review and approval of a rebate application including proof of purchase and installation, including receipts.</p> <table border="1" data-bbox="516 932 919 1161"> <thead> <tr> <th>Measure</th> <th>Incentive per Unit</th> </tr> </thead> <tbody> <tr> <td>T-8 Retrofits</td> <td>\$4 - \$10</td> </tr> <tr> <td>C&amp;I CFL Bulbs</td> <td>\$2</td> </tr> <tr> <td>Motors</td> <td>\$10 - \$2,000</td> </tr> <tr> <td>HVAC-related</td> <td>\$10 - \$1,000</td> </tr> </tbody> </table>	Measure	Incentive per Unit	T-8 Retrofits	\$4 - \$10	C&I CFL Bulbs	\$2	Motors	\$10 - \$2,000	HVAC-related	\$10 - \$1,000
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<p><b>Milestones</b></p>	<p><b>December 2007:</b> Draft and distribute Implementation Vendor RFP (jointly with the Custom Incentive Program)</p> <p><b>February 2008:</b> Commission approval</p> <p><b>February-March 2008:</b> Implementation contractor selection</p> <p><b>April-May 2008:</b> Final program design, measure selection, and savings determination</p> <p><b>June 2008:</b> Program launch</p>										

### 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 contractor 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.

#### 4. Ameren Illinois Utilities' Portfolio

##### 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 Participation

Measure	2008 Installations	2009 Installations	2010 Installations
T-8 Retrofits	79,841	153,656	210,501
C&I CFL Bulbs	131,161	234,916	313,221
Motors	577	1,034	1,378
HVAC-related	161	316	491

##### Estimated Budget

Estimated Budget				
Budget Category	2008	2009	2010	Total
Total	\$3,499,239	\$6,267,293	\$8,356,391	\$18,122,924

#### 4. Ameren Illinois Utilities' Portfolio

Savings Targets	<table border="1"> <thead> <tr> <th colspan="5">MWH Savings</th> </tr> <tr> <th>Year</th> <th>2008</th> <th>2009</th> <th>2010</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Gross MWH</td> <td>46,416</td> <td>83,134</td> <td>110,845</td> <td>240,395</td> </tr> <tr> <td>Realization Rate</td> <td>0.95</td> <td>0.95</td> <td>0.95</td> <td>-</td> </tr> <tr> <td>Net-to-Gross</td> <td>0.80</td> <td>0.80</td> <td>0.80</td> <td>-</td> </tr> <tr> <td>Net MWH</td> <td>35,276</td> <td>63,182</td> <td>84,242</td> <td>182,700</td> </tr> </tbody> </table>	MWH Savings					Year	2008	2009	2010	Total	Gross MWH	46,416	83,134	110,845	240,395	Realization Rate	0.95	0.95	0.95	-	Net-to-Gross	0.80	0.80	0.80	-	Net MWH	35,276	63,182	84,242	182,700
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Program Metrics	<p>The principal program metrics are the annual energy savings, 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.</p>																														
Cost-effectiveness	Total Resource Cost Test: 1.37																														

## 4. Ameren Illinois Utilities' Portfolio

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### C&I – Retro-Commissioning Program (RCx)

<b>PROGRAM NAME</b>	C&I – Retro-Commissioning Program (RCx)
<b>Objective</b>	Identify and implement low cost tune-ups and adjustments that improve the efficiency of existing buildings' operating systems by returning them to intended operation or design specifications, with a focus on building controls and HVAC systems. The viability of this program remains to be tested in the Ameren Illinois Utilities' (the Company) service territory. Retro-Commissioning programs have tended to be most successful where there are larger concentrations of commercial and institutional space. While we believe the program will prove viable, we see the first three-year implementation period as one during which we develop a much more complete understanding of consumer demand, the nature of the building stock most likely to take advantage of the program, the levels of savings we see from the program and so forth. Therefore, our assumptions regarding programs costs and savings are tentative pending confirmation from this first three-year implementation.
<b>Target Market</b>	The program will be targeted to nonresidential customers.
<b>Program Duration</b>	June 2009 through May 2011.
<b>Program Description</b>	<p>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. 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.</p> <p>Retro-commissioning (RCx) services will be delivered through a network of commissioning providers operating in the Company service territory that have been trained in program protocols and participation processes. For smaller facilities, commissioning providers will conduct a targeted assessment of areas with substantial energy savings opportunities such as packaged HVAC units. Larger facilities will be eligible to receive a more comprehensive assessment of building systems and controls. To motivate participation, but also ensure that customers are invested in the process, the Company will provide cost-sharing for the cost of the RCx study. Financial incentives will also be provided to assist in overcoming first cost barriers implementing RCx study recommendations.</p>

#### 4. Ameren Illinois Utilities' Portfolio

##### Eligible Measures

RCx measure cost and savings used for program planning purposes include chilled and hot water loop temperature controls, cleaning of air-cooled condenser coils, and time clock controls for packaged systems. Other measures such as outdoor air and control strategy modifications will also be considered. The Company will reserve the right to revise eligible measures as needed in accordance with current market conditions, technology development, EM&V results, and program implementation experience.

Measure	Incentive per Unit
Air-cooled multiplex system w/extensive refrigeration equipment maintenance, normal setpoints	\$110
Ambient following SCT setpoint, 70°F minimum	\$140
Ambient following SCT setpoint, 70°F minimum, variable-spdc condenser fan	\$190
Chiller-Reset	\$560
Cleaned Coil	\$50 - \$170
Cycle fan off with thermostat; duty cycle occasionally when off	\$90
Extensive refrigeration equipment maintenance	\$80
Floating SCT controlled to 70°F	\$180
Floating SST control on LT and MT suction groups	\$60
Optimized OA	\$20 - \$50
Reduce design SCT by ~5°F and improve efficiency	\$280
Scheduled AHU	\$2600 - \$47,800
Turn off fixture lights when store closed, between 12am and 6am	\$10
Wetbulb following SCT setpoint, 70°F minimum	\$250
Wetbulb following SCT setpoint, 70°F minimum, variable-spdc condenser fan	\$260

### Implementation Strategy

The program will be administered by an implementation contractor selected through an RFP process. The implementation contractor will administer the program, oversee RCx activities conducted by participating commissioning providers, review RCx studies and provide independent evaluation of savings estimates, and provide post-installation verification. Company account managers can help to market the program and identify potential candidate customers for participation.

Key elements of the RCx Program implementation strategy include:

- **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.
- **Trade ally recruitment and training:** Commissioning providers will be the Program's key delivery mechanism as they promote RCx services and available incentives to their customers. Commissioning providers will be recruited to participate in brief training sessions to inform them about program incentives, participation processes, RCx protocols, and requirements. Trade allies actively participating in the RCx Program and other program offerings will receive regular communications about program activities and changes to ensure they are informed and engaged participants.
- **Customer recruitment:** Customers will be recruited by Program staff as well as trade allies. As the program targets larger customers, referrals by the Companies account managers will be a key element of customer recruitment. To ensure that nonresidential customers perceive the Company's energy efficiency programs as a seamless set of offerings, cross-referrals from other programs will also be provided where appropriate.
- **Pre-screening:** To ensure that RCx efforts are focused on high-opportunity buildings, the Company will promote benchmarking with EPA's energy performance rating system as a pre-screening mechanism, and benchmarking will be supported by the market conditioning components of the energy efficiency portfolio.
- **RCx study:** During the study phase, the commissioning provider will conduct a facility assessment to diagnose problems and make recommendations for minor low-cost adjustments that can be made immediately, as well as recommendations for more substantial improvement opportunities, including an assessment of cost, savings, and payback. Where applicable, the RCx study may include an assessment of energy savings opportunities eligible for incentives through the Company's other nonresidential program offerings, and in all such cases the incentive levels established by those programs will be used.
- **Study review:** The program implementation contractor will review the RCx study and determine implementation incentives based on projected savings.
- **Project implementation:** It will be the responsibility of the customer to implement those RCx study recommendations that have received Program approval and are eligible for implementation incentives.
- **Project verification:** The Company will reserve the right to site-verify installations prior to approval and payment of implementation incentives.

## 4. Ameren Illinois Utilities' Portfolio

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<b>Exit Strategy</b>	<p>This program will begin implementation in 2008. It likely will be re-evaluated as part of the Company's next 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 and potentially build distrust between the utility Company and RCx contractors.</p>
<b>Marketing Strategy</b>	<p>The RCx Program will be marketed to customers and trade allies. The Companies account managers will be trained and provided with program collateral.</p> <ul style="list-style-type: none"><li>• <b>Customer marketing:</b> In direct marketing efforts, the Company will target large customers and owners/operators of multiple buildings through direct mail and personal contact by Company account managers for managed accounts. The Company also will conduct outreach to Building Owners and Manager's Association (BOMA) chapters, real estate management companies, and other business associations, and pursue opportunities to provide training and educational materials at trade shows and other association events.</li><li>• <b>Trade ally marketing:</b> Outreach and training will be provided for commissioning providers, industry professionals and energy services companies that have business motivations for promoting RCx services to their customers.</li><li>• <b>Cooperative marketing:</b> The Company will seek to leverage trade ally advertising by pursuing cooperative marketing opportunities.</li><li>• <b>Web:</b> Common to all programs, a clear web presence for the program will be established.</li></ul>
<b>Incentive Strategy</b>	<p>The Company will provide cost sharing for the cost of the RCx assessment and study, and up to a per-project cap of \$5,000. Implementation incentives will be offered on a \$/kWh basis covering some of the incremental cost of implementing recommended energy efficiency measures. In cases where a project includes measures eligible for incentives through the Company's other nonresidential programs, the incentive levels established by those programs will be used. The Company reserves the right to establish a per-project incentive cap for RCx Program projects during final program design.</p> <p>As the RCx Program evolves beyond the initial ramp-up period and ongoing EM&amp;V activities track program performance, the Company may adjust incentive levels based on implementation experience.</p> <p>The incentive cost included in the budget is based on assumptions regarding the costs of efficiency measures likely included in retro-commissioning projects and the possible numbers of such measures adopted. However, as noted, the actual incentive is likely to be set on a \$/square foot basis based on further analysis of existing programs, the available budget, expected demand for the program and input from potential RCx providers.</p>
<b>Milestones</b>	<p><b>December 2007:</b> Draft and distribute Implementation Vendor RFP</p> <p><b>February 2008:</b> Commission approval</p> <p><b>February-March 2008:</b> Implementation contractor selection</p> <p><b>April-May 2008:</b> Final program design, measure selection, and savings determination</p> <p><b>June 2008:</b> Program launch</p>

### 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 the evaluation resources on the programs with the most savings and highest risk of being inaccurate. This program has more risk of eroded savings estimates (compared to other programs in the portfolio) because the measures can be removed, adjusted, reprogrammed, over-riden, not maintained, or changed in other ways.

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 contractors 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.

#### 4. Ameren Illinois Utilities' Portfolio

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<b>EM&amp;V Requirements, Continued</b>	<p>During the impact assessment on-site inspections and during the interview efforts, the evaluation contractor will also conduct a process evaluation assessment to obtain customer satisfaction and program interaction information. The process evaluation will provide the results of the process evaluation assessment along with recommendations for improving the program operations and impacts. The process evaluation will also include interviews with program managers and other allies as appropriate to assess program design, delivery and operations.</p>
<b>Administrative Requirements</b>	<p>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&amp;E and Seattle City Light are proceeding with tests of electronic transfer that appear promising.</p> <p>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.</p> <p>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.</p> <p>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.</p>

#### 4. Ameren Illinois Utilities' Portfolio

##### Estimated Participation

The following participation estimates have been used for planning purposes based on an assumed annual savings of approximately 20 MWH per project. They represent modeled facilities that provide the level of required savings. However, The Company reserves the right to adjust anticipated participation levels as necessary in accordance with current market conditions, EM&V and savings results, and program implementation experience.

Measure	2008 Installations	2009 Installations	2010 Installations
Air-cooled multiplex system w/extensive refrigeration equipment maintenance, normal setpoints	4	10	16
Ambient following SCT setpoint, 70°F minimum	1	3	4
Ambient following SCT setpoint, 70°F minimum, variable-spд condenser fan	1	3	4
Chiller-Reset	2	4	6
Cleaned Coil	62	149	231
Cycle fan off with thermostat; duty cycle occasionally when off	1	3	4
Extensive refrigeration equipment maintenance	4	10	16
Floating SCT controlled to 70°F	2	5	8
Floating SST control on LT and MT suction groups	1	3	4
Optimized OA	7	16	25
Reduce design SCT by ~5°F and improve efficiency	1	3	4
Scheduled AHU	6	15	23
Turn off fixture lights when store closed, between 12am and 6am	1	3	4
Wetbulb following SCT setpoint, 70°F minimum	1	3	4
Wetbulb following SCT setpoint, 70°F minimum, variable-spд condenser fan	1	3	4

#### 4. Ameren Illinois Utilities' Portfolio

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##### Estimated Budget

The following budget has been used for planning purposes and is based generally on the results of a measure-based analysis. However, the Company reserves the right to adjust program budgets as necessary in accordance with current market conditions, EM&V results, and program implementation experience. We assume, on average an all-in project cost of approximately \$3,000. As noted below, this cost, when coupled with per unit savings might appear low. However, we assume that a substantial number of measures installed could be covered by either the Prescriptive or Custom incentive elements. Savings would accrue to the RCx program based on its origination of the projects and payment of study and basic retrofit incentives.

Estimated Budget				
Budget Category	2008	2009	2010	Total
Total	\$192,206	\$461,294	\$717,569	\$1,371,069

#### 4. Ameren Illinois Utilities' Portfolio

##### Savings Targets

The following savings targets have been used for planning purposes. However, the Company reserves the right to adjust savings targets as necessary in accordance with current market conditions, EM&V results, and program implementation experience. Our budget assumes that we can harvest savings at a relatively low cost of about 14 cents per first year kWh, which assumes a relatively low implementation cost and incentive. These assumptions will be tested in our market and revised as appropriate given market response.

Measure	Units	kWh/unit	kW/unit
Air-cooled multiplex system w/extensive refrigeration equipment maintenance, normal setpoints	tons served	750	0.1
Ambient following SCT setpoint, 70°F minimum	tons served	930	0.0
Ambient following SCT setpoint, 70°F minimum, variable-spnd condenser fan	tons served	1,300	0.0
Chiller-Reset	1 building	3,700	0.0
Cleaned Coil	tons served	320 - 1,200	0.2
Cycle fan off with thermostat; duty cycle occasionally when off	1 motor	610	0.1
Extensive refrigeration equipment maintenance	tons served	550	0.0
Floating SCT controlled to 70°F	tons served	1,200	0.0
Floating SST control on LT and MT suction groups	tons served	420	0.1
Optimized OA	1000 sq ft	120 - 340	0.2
Reduce design SCT by -5°F and improve efficiency	tons served	1,900	0.2
Scheduled AHU	1 building	17,300 – 319,000	0.0
Turn off fixture lights when store closed, between 12am and 6am	fixture linear feet	70	0.0
Wetbulb following SCT setpoint, 70°F minimum	tons served	1,700	0.1
Wetbulb following SCT setpoint, 70°F minimum, variable-spnd condenser fan	tons served	1,800	0.1

#### 4. Ameren Illinois Utilities' Portfolio

<b>Savings Targets (cont.)</b>	<b>MWH Savings</b>				
	<b>Year</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>Total</b>
	<b>Gross MWH</b>	674	1,619	2,518	4,811
	<b>Realization Rate</b>	0.95	0.95	0.95	-
	<b>Net-to-Gross</b>	0.80	0.80	0.80	-
	<b>Net MWH</b>	513	1,230	1,914	3,656
<b>Other Program Metrics</b>	<p>The principal program metrics are the annual energy savings targets, and delivery at or below budgeted cost. Secondary metrics include RCx studies conducted, total number of projects proceeding with implementation of RCx recommendations, 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.</p> <p>The program will also track marketing/outreach activities such as trade ally outreach events/trainings conducted, customer outreach events/trainings conducted, and trade shows and industry association events attended.</p>				
	<p><b>Cost-effectiveness</b> Total Resource Cost Test: <b>1.40</b></p>				

## 4. Ameren Illinois Utilities' Portfolio

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### Commercial New Construction

<b>PROGRAM</b>	<b>Commercial New Construction</b>
<b>Objective</b>	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.
<b>Target Market</b>	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.
<b>Program Duration</b>	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.
<b>Program Description</b>	<p>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.</p> <p>The program will work with building owners/managers, design professionals, trade allies, and contractors 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.</p> <p>At this stage in the program design process the program is envisioned as having two tracks.</p> <ol style="list-style-type: none"> <li>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.</li> <li>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.</li> </ol> <p>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.</p> <p>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. 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.</p>

## 4. Ameren Illinois Utilities' Portfolio

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<b>Implementation Strategy</b>	<p>The Ameren Illinois Utilities (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:</p> <ul style="list-style-type: none"><li>○ Recruiting new projects through outreach to the design and developer community. Key activities include presentations at local conferences/workshops, one-on-one-contacts with designers and developers and marketing by the Companies account managers to large customers.</li><li>○ Project application. Applications will describe the proposed project and efficiency/resource conservation objectives.</li><li>○ Application routing and approval. 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.</li><li>○ Design assistance. The implementation contractor will provide design assistance on a selective basis. The assistance will involve principally energy simulation.</li><li>○ 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.</li><li>○ Verification. Upon completion of the building, proposed measures or performance will be verified by the implementation contractor.</li><li>○ Payment. Either the implementation contractor or the Company will pay incentives per the reservation.</li></ul>
<b>Exit Strategy</b>	<p>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. The southern Illinois market does not yet have a robust green design community; therefore, a program shut-down could acutely stunt local development of the design community toward high-performance standards.</p>
<b>Marketing Strategy</b>	<p>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.</p> <p>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. Because the local design community is relatively unfamiliar with high-performance building, this marketing will be critical to ensuring program success.</p>

## 4. Ameren Illinois Utilities' Portfolio

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<b>Eligible Measures and Incentive Strategy</b>	<p>Incentives</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th style="text-align: center;">Measure</th> <th style="text-align: center;">Incentive per Unit</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">New Construction Building - with upgrades</td> <td style="text-align: center;">\$30,000</td> </tr> </tbody> </table>	Measure	Incentive per Unit	New Construction Building - with upgrades	\$30,000
Measure	Incentive per Unit				
New Construction Building - with upgrades	\$30,000				
<b>Milestones</b>	<p><b>June 2008:</b> – Issue RFP for implementation services  <b>September 2008:</b> – Execute implementation contract  <b>December 2008:</b> – Complete detailed implementation plan  <b>January 2009 – May 2009:</b> – Complete Contractor Training  <b>June 2009:</b> – Program launch</p>				
<b>EM&amp;V Requirements</b>	<p>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.</p> <p>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.</p> <p>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.</p> <p>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 assess 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.</p>				

#### 4. Ameren Illinois Utilities' Portfolio

<b>Administrative Requirements</b>	<p>The Company will be responsible for developing the RFQ or RFP, implementation contractor selection and performance monitoring, and incentive payments.</p> <p>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.</p>																																						
<b>Estimated Participation</b>	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #cccccc;"> <th style="width: 40%;">Measure</th> <th style="width: 15%;">2008 Installations</th> <th style="width: 15%;">2009 Installations</th> <th style="width: 15%;">2010 Installations</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">New Construction Building - with upgrades</td> <td>0</td> <td>2</td> <td>7</td> </tr> </tbody> </table>	Measure	2008 Installations	2009 Installations	2010 Installations	New Construction Building - with upgrades	0	2	7																														
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<b>Savings Targets</b>	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #cccccc;"> <th style="width: 30%;">Measure</th> <th style="width: 20%;">Units</th> <th style="width: 20%;">kWh/unit</th> <th style="width: 10%;">kW/unit</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">New Construction Building - with upgrades</td> <td>1 building</td> <td>79,600</td> <td>25.5</td> </tr> </tbody> </table> <p><i>Total Savings:</i></p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #cccccc;"> <th colspan="5">MWH Savings</th> </tr> <tr style="background-color: #cccccc;"> <th style="width: 15%;">Year</th> <th style="width: 15%;">2008</th> <th style="width: 15%;">2009</th> <th style="width: 15%;">2010</th> <th style="width: 15%;">Total</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">Gross MWH</td> <td>0</td> <td>127</td> <td>573</td> <td>700</td> </tr> <tr> <td style="text-align: left;">Realization Rate</td> <td>1.00</td> <td>1.00</td> <td>1.00</td> <td>-</td> </tr> <tr> <td style="text-align: left;">Net-to-Gross</td> <td>0.80</td> <td>0.80</td> <td>0.80</td> <td>-</td> </tr> <tr> <td style="text-align: left;">Net MWH</td> <td>0</td> <td>102</td> <td>458</td> <td>560</td> </tr> </tbody> </table>	Measure	Units	kWh/unit	kW/unit	New Construction Building - with upgrades	1 building	79,600	25.5	MWH Savings					Year	2008	2009	2010	Total	Gross MWH	0	127	573	700	Realization Rate	1.00	1.00	1.00	-	Net-to-Gross	0.80	0.80	0.80	-	Net MWH	0	102	458	560
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<b>Program Metrics</b>	<p>The primary metrics are the energy 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. Because the most important impacts of this program type are the long-term changes in the market via transformation of local design and construction professionals, new construction programs can provide benefits beyond their specific energy savings.</p>																																						

#### 4. Ameren Illinois Utilities' Portfolio

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Cost-  
effectiveness

Total Resource Cost Test: 1.12

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## 4. Ameren Illinois Utilities' Portfolio

### Street Light Program

PROGRAM	<b>Street Light Program</b>
Objective	Acquire cost-effective energy conservation by upgrading identified street light fixtures to more energy efficient models and/or technology.
Target Market	Customers (primarily communities) in the Ameren Illinois Utilities (the Company) service territory that have mercury vapor and/or incandescent street light fixtures that are owned by the Company.
Program Duration	Three year initial program implementation (2008-2011); Continuation of the program in subsequent years will depend on results of the initial period.
Program Description	<p>Company-owned mercury vapor and incandescent outdoor protective lighting or street lights will be replaced with high pressure sodium fixtures. Other energy efficient technologies such as HID and LED will be considered and used where appropriate. Reduced energy charges through filed tariffs and discounts for the cost of installing new fixtures will create acceptable economics for adoption by customers. The primary delivery strategy will be direct contact with customers who have mercury vapor and/or incandescent street light fixtures owned by the Company. Essential elements of the program will include:</p> <ul style="list-style-type: none"> <li>• Company Community and Field resources will provide support for promotions and networking with customers and be a primary contact for conveying information and responding to questions regarding the program</li> <li>• Training — educate internal staff on the benefits of energy efficient lighting and specifics of the program.</li> <li>• Consumer incentives—provided to offset the purchase price</li> </ul>
Implementation Strategy	<p>The Company may 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 incentive fulfillment. These activities will be designed to yield savings that can clearly be attributed to the Companies investment. Given the budget and the nature of community purchasing behavior (communities tend to determine annual budget costs based on a short-term payback period and approval of expenditures may require several months) this program will begin implementation in early summer of 2008. The Company (or third-party implementer, if one is used) will:</p> <ul style="list-style-type: none"> <li>• Conduct promotions through outreach to the communities primarily through direct letter campaign.</li> <li>• Leverage the Companies Street Light Program initiatives with any similar type street light program that DCEO may initiate — piggyback on activities with contractors participating in both programs.</li> <li>• Where necessary, form relationships with contractors to replace mercury vapor and/or incandescent street lighting fixtures with energy efficient lighting products.</li> </ul> <p>The implementation contractor will also act as a resource for customer inquiries and take a leadership role in developing a campaign for community outreach. If the company hires an implementation contractor, that firm will be responsible for community outreach, campaign development and execution and incentive fulfillment.</p>
Exit Strategy	The time-limited nature of the promotions through direct mail that will characterize this program makes it relatively easy to exit this market if the program is found to not be cost-effective or if the Company's strategy changes. It will be important to emphasize as an element of the promotions that any incentives are available only on a first-come-first-served basis.

#### 4. Ameren Illinois Utilities' Portfolio

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<b>Marketing Strategy</b>	<p>The marketing strategy will coincide with the implementation strategy. With the marketing program directed specifically to customers who have a specific type of street light fixture that is owned by the Company, it should be relatively easy to capture audience attention and to communicate the benefits (cost and lighting improvements) to the customers. The most effective marketing strategy will be to build awareness around the specific promotions, the potential lower operating costs, improved lighting and the opportunity to improve the environment. One important consideration in both implementation and marketing strategy is the planning cycle of the eligible customers and will require that program information be provided to the customers as early as possible to account for the time necessary for the customers to seek approval to expend dollars. Essential elements of the marketing strategies will include:</p> <ul style="list-style-type: none"> <li>• Direct mail to eligible customers</li> <li>• Web placement with downloadable program information</li> <li>• Coordination with any similar type street light program the DCEO may initiate</li> </ul>				
<b>Eligible Measures and Incentive Strategy</b>	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Measure</th> <th style="text-align: center;">Incentive per Unit</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Energy Efficient Lighting Technology</td> <td style="text-align: center;">\$50</td> </tr> </tbody> </table>	Measure	Incentive per Unit	Energy Efficient Lighting Technology	\$50
Measure	Incentive per Unit				
Energy Efficient Lighting Technology	\$50				
<b>Milestones</b>	<p><b>December 2007:</b> - Issue RFP for implementation services</p> <p><b>February 2008:</b> - Commission approval</p> <p><b>March 2008:</b> - Select implementation contractor</p> <p><b>March 2008:</b> – Execute implementation contract</p> <p><b>May 2008:</b> – Complete detailed implementation plan</p> <p><b>June 2008:</b> – Program launch</p>				
<b>EM&amp;V Requirements</b>	<p>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 is a relatively small program in the portfolio contributing to less than five percent of portfolio savings over three years so it will likely not be studied at the same level of rigor as larger programs. That said, the program has a well-specified target market and a limited number of measures that are easy-to-install, so a small budget may be used effectively to verify program savings and recommend program process improvements.</p> <p>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. Budget permitting, the evaluator will use on- and off-site engineering verification assessments to confirm the project's as-installed and used conditions that provide the expected savings. Off-site verification assessments only may be satisfactory under a tighter budget. The evaluator will review energy savings assumptions and calculations used by the program and compare it to data collected during the evaluation to alter the program assumptions and calculations as necessary. The evaluator will test the validity of program baseline assumptions via interviews with participants and findings from the on- and off-site engineering assessments.</p>				

## 4. Ameren Illinois Utilities' Portfolio

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### Administrative Requirements

Most direct program administrative requirements will be handled by one or more third party implementation contractors. 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
- 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
- Incentive processing/fulfillment\*
- Customer support—toll free customer service line (decision must be made as to whether customer program inquiries should route through the existing Companies call center and website).
- Reporting

The Company will need to allocate approximately .5 FTE during program start-up, with a steady-state requirement of 0.5 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 .5 – .75 FTE Company-wide.

With respect to incentive fulfillment, an early decision must be made as to whether incentives 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 incentives, 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	2008 Installations	2009 Installations	2010 Installations
Energy Efficient Lighting Technology	8,000	8,000	8,000

### Estimated Budget

Estimated Budget				
Budget Category	2008	2009	2010	Total
<b>Total</b>	<b>\$520,000</b>	<b>\$520,000</b>	<b>\$520,000</b>	<b>\$1,560,000</b>

#### 4. Ameren Illinois Utilities' Portfolio

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#### Savings Targets

Measure	Units	kWh/unit	kW/unit
Energy Efficient Lighting Technology	1 lamp	700	0.3

#### Total Savings

MWH Savings				
Year	2008	2009	2010	Total
Gross MWH	5,590	5,590	5,590	16,771
Realization Rate	0.95	0.95	0.95	-
Net-to-Gross	0.80	0.80	0.80	-
Net MWH	4,249	4,249	4,249	12,746

#### Program Metrics

The principal program metrics are the annual energy and demand savings, and delivery at or below budgeted cost. Secondary metrics include time-to-approve and time-to-install, 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 may result in formal program review and possible revision.

#### Cost-effectiveness

Total Resource Cost Test:  
**1.93**

#### ***4.2.4. Residential and Business Demand-response Solutions***

With an eye toward reduced reliance on expensive peak power and increased system stability, the Ameren Illinois Utilities' Demand-response programs elements will acquire cost-effective Demand-response capabilities from both eligible residential and business customers. These will be designed to provide value to participating customers through incentives that encourage participation and reduce the rate of participant turnover (churn). In residential applications, 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.

For residential and commercial customers, the Demand-response program offers another element of whole building energy management, and can be another entry point for customers into the suite of efficiency services the utilities can provide.

## 4. Ameren Illinois Utilities' Portfolio

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### Residential Direct Load Control

<b>PROGRAM</b>	<b>Residential Direct Load Control</b>
<b>Objective</b>	This program is designed to acquire peak demand reduction through fully-automated Direct Load Control of residential central air conditioners.
<b>Target Market</b>	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.
<b>Program Duration</b>	June 2008 – May 2011.
<b>Program Description</b>	98% of the Ameren Illinois Utilities (The Company) residential customers are estimated to have a Central AC system. These systems typically account for half of a home's summer peak demand. Under this program, the Company provides free installation of a load control switch and a modest customer incentive for authorizing the Company to cycle the customer's air conditioner during times of high peak load.
<b>Eligible Measures</b>	Direct AC load control switch.
<b>Implementation Strategy</b>	This program will be implemented primarily by the Company with third party installation and marketing assistance. The Company will solicit participation primarily through bill inserts. When a participation request is received, the Company will route the job to its installation contractor; average time from order to install is estimated to be approximately one working month. The Company will then exercise control over the switch. The customer will be paid an incentive for agreeing to place the air conditioner under the Company's control for up to eight hours per season.
<b>Exit Strategy</b>	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.
<b>Marketing Strategy</b>	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.

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<b>Incentive Strategy</b>	<table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr> <th style="width: 70%;">Measure</th> <th style="width: 30%;">Incentive per Unit</th> </tr> </thead> <tbody> <tr> <td>Demand-response 1 kW</td> <td style="text-align: center;">\$170</td> </tr> </tbody> </table>	Measure	Incentive per Unit	Demand-response 1 kW	\$170											
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Demand-response 1 kW	\$170															
<b>Milestones</b>	<p>December 2007: Draft and distribute implementation vendor RFP</p> <p>February 2008: Commission approval</p> <p>February-April 2008: Final program design and installation contractor selection</p> <p>April-May 2008: Prepare initial customer recruiting campaign</p> <p>June 2008: Program launch</p>															
<b>EM&amp;V Requirements</b>	The key EM&V issue is verification of the 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. The Company will work with the third party M&V contractor to design and execute appropriate analyses of a statistically valid set of sites to verify the per unit load reductions.															
<b>Administrative Requirements</b>	The start-up FTE requirements will range between 1 and 2 FTE to arrange for installation services, manage the development of control protocols and software, and prepare the initial marketing recruiting campaign. Steady-state requirements are approximately .5 to 1.0 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.															
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Total	\$637,326	\$851,820	\$1,087,386	\$2,576,532												

4. Ameren Illinois Utilities' Portfolio

<b>Savings Targets</b>	<table border="1"> <thead> <tr> <th>Measure</th> <th>Units</th> <th>kW/unit</th> </tr> </thead> <tbody> <tr> <td>Demand-response 1 kW</td> <td>1 kW</td> <td>1</td> </tr> </tbody> </table>	Measure	Units	kW/unit	Demand-response 1 kW	1 kW	1																							
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<p><i>Total Savings (rounded to nearest MW) :</i></p> <table border="1"> <thead> <tr> <th colspan="5">MW Savings</th> </tr> <tr> <th>Year</th> <th>2008</th> <th>2009</th> <th>2010</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Gross MW</td> <td>3</td> <td>6</td> <td>9</td> <td>19</td> </tr> <tr> <td>Realization Rate</td> <td>1.00</td> <td>1.00</td> <td>1.00</td> <td>-</td> </tr> <tr> <td>Net-to-Gross</td> <td>0.95</td> <td>0.95</td> <td>0.95</td> <td>-</td> </tr> <tr> <td>Net MW</td> <td>3</td> <td>6</td> <td>9</td> <td>18</td> </tr> </tbody> </table>	MW Savings					Year	2008	2009	2010	Total	Gross MW	3	6	9	19	Realization Rate	1.00	1.00	1.00	-	Net-to-Gross	0.95	0.95	0.95	-	Net MW	3	6	9	18
MW Savings																														
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Net-to-Gross	0.95	0.95	0.95	-																										
Net MW	3	6	9	18																										
<b>Program Metrics</b>	The primary metric is demand reduction. Key secondary metrics include reduction per customer, churn rate and acquisition cost.																													
<b>Cost-effectiveness</b>	Total Resource Cost Test: 1.73																													

## 4. Ameren Illinois Utilities' Portfolio

### Commercial Demand Credit

<b>PROGRAM</b>	<b>Commercial Demand Credit</b>
<b>Objective</b>	Acquire 13 MW of peak load reduction through enrollment of eligible retail commercial customers in the Commercial Demand Credit Program throughout the program period. Eligible retail commercial customers are identified as those commercial customers with demands less than 400 kW receiving fixed price supply service from the Ameren Illinois Utilities
<b>Target Market</b>	Eligible retail commercial facilities with peak demand reduction capabilities of 25 kW or greater at a single premise and an interval meter will be eligible to participate in the Program.
<b>Program Duration</b>	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.
<b>Program Description</b>	Eligible retail commercial customers willing to curtail their service by the Ameren Illinois Utilities (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 the 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. Customers receive payments only for demand reductions during events.
<b>Eligible Measures</b>	N/A
<b>Implementation Strategy</b>	<p>The Program will be implemented by the Company, with customer outreach and enrollment.</p> <p>The Program would be open to commercial customers served under the Power and Energy Supply Option Rider BGS – Basic Generation Service and under the following Rider BGS Service Classifications:</p> <ul style="list-style-type: none"> <li>• BGS-2 – Small General Service</li> <li>• BGS-3 – General Service (&lt;400 kW)</li> </ul> <p>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 25 kW.</p> <p>The Company will notify customers by 8 am on the last business day prior to and/or 8 am 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.</p> <p>The customer will then notify the Company by 10 am 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 10 am, the Company will assume that the customer will not participate and no incentive will be paid.</p> <p>Customers that do not respond or curtail load to a predefined number of consecutive curtailment requests, as defined by the Company, 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.</p> <p>The Company will then determine the appropriate curtailment total and the resulting payments/bill credits.</p>
<b>Exit Strategy</b>	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.

#### 4. Ameren Illinois Utilities' Portfolio

<b>Marketing Strategy</b>	Eligible retail customers will be identified and informed about the Program through direct mailings. Additional outreach will be conducted through program presentations at relevant meetings, conferences, and events targeting eligible retail commercial end users in the Company's service territory.															
<b>Incentive Strategy</b>	Customers will receive a price per kWh for reductions during a curtailment event.															
	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="background-color: #cccccc;">Measure</th> <th style="background-color: #cccccc;">Incentive per Unit</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Demand-response 25 kW</td> <td style="text-align: center;">\$500</td> </tr> </tbody> </table>	Measure	Incentive per Unit	Demand-response 25 kW	\$500											
Measure	Incentive per Unit															
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<b>Milestones</b>	<p><b>December 2007:</b> – Issue RFP for implementation services (jointly with the Prescriptive Incentive Program)</p> <p><b>February 2008:</b> - Commission Approval</p> <p><b>March 2008:</b> – Execute implementation contract</p> <p><b>April 2008:</b> – Complete detailed implementation plan</p> <p><b>June 2008:</b> – Program launch</p>															
<b>EM&amp;V Requirements</b>	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.															
<b>Administrative Requirements</b>	Program administration will require marketing and outreach to eligible retail customers, customer enrollment and contract management, notification of curtailment events, and processing of incentives.															
<b>Estimated Participation</b>	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="background-color: #cccccc;">Measure</th> <th style="background-color: #cccccc;">2008 Installations</th> <th style="background-color: #cccccc;">2009 Installations</th> <th style="background-color: #cccccc;">2010 Installations</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Demand-response 25 kW</td> <td style="text-align: center;">98</td> <td style="text-align: center;">195</td> <td style="text-align: center;">288</td> </tr> </tbody> </table> <p>Each retail commercial customer achieves an average demand reduction of 25 kW per curtailment event.</p>	Measure	2008 Installations	2009 Installations	2010 Installations	Demand-response 25 kW	98	195	288							
Measure	2008 Installations	2009 Installations	2010 Installations													
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<b>Estimated Budget</b>	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="5" style="background-color: #cccccc;">Estimated Budget</th> </tr> <tr> <th style="background-color: #cccccc;">Budget Category</th> <th style="background-color: #cccccc;">2008</th> <th style="background-color: #cccccc;">2009</th> <th style="background-color: #cccccc;">2010</th> <th style="background-color: #cccccc;">Total</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><b>Total</b></td> <td style="text-align: center;">\$51,452</td> <td style="text-align: center;">\$102,617</td> <td style="text-align: center;">\$151,444</td> <td style="text-align: center;">\$305,512</td> </tr> </tbody> </table>	Estimated Budget					Budget Category	2008	2009	2010	Total	<b>Total</b>	\$51,452	\$102,617	\$151,444	\$305,512
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#### 4. Ameren Illinois Utilities' Portfolio

<b>Savings Targets</b>	<table border="1"> <thead> <tr> <th>Measure</th> <th>Units</th> <th>kW/unit</th> </tr> </thead> <tbody> <tr> <td>Demand-response</td> <td>25 kW</td> <td>25</td> </tr> </tbody> </table>	Measure	Units	kW/unit	Demand-response	25 kW	25																								
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<b>Program Metrics</b>	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).																														
<b>Cost-effectiveness</b>	Total Resource Cost Test: <b>2.50</b>																														

#### ***4.2.5. DCEO Programs***

The DCEO portfolio is described in detail in the program templates filed by DCEO with the Commission under separate cover.

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## 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 Ameren Illinois Utilities' 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 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; thus the Act's requirement that the Company retain independent third party evaluation services. 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.

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; and
- Provide internal quality assurance/control.

### **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.

By statute, the Company retains the responsibility to retain an independent evaluator to determine annual energy savings and portfolio cost-effectiveness. However, the importance of the process, the need to ensure its credibility and the expertise that can be brought by a number of our stakeholders, all suggest that the process for selecting this contractor will benefit from stakeholder participation. We envision an advisory process that would have stakeholders work with the Company to develop a scope of work for the contractor that would be contained in the request for proposals. We would also 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. This process should begin as soon as the Commission issues its decision and the contractor should be in-place by late April 2008.

### **5.3. Establish Appropriate Program M&V Protocols and Guidelines**

During the program design phase and prior to program launch, the Company will work with the Company's evaluation contractor (and the contractor used by ComEd if different) to establish appropriate M&V protocols specific to each program. All M&V protocols will be developed in accordance to the International Performance Measurement and Verification Protocol (IPMVP), and will take advantage of the development of other recent similar protocols. 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 Deemed Energy Savings Values**

The Ameren Illinois Utilities proposes that certain measure savings values be deemed appropriate by the Commission for purposes of planning and evaluation. The Company proposes that any changes in the deemed values that the evaluator believes are appropriate should be applied on a prospective basis only. The specific measure savings values that the Ameren Illinois Utilities proposes be deemed are included in the testimony of the Ameren Illinois Utilities witness Val Jensen.

The measures for which the Ameren Illinois Utilities proposes the Commission deem savings values primarily are common lighting measures used within the Residential Lighting and Appliances program element, the Residential Multifamily program element, the C&I Prescriptive Incentive program element, and the Street Light program element. In these cases, the majority of savings is expected to come from measures for which the savings are well understood and can be reasonably predicted. Deeming such standard measures is common under the International Program Measurement and Verification Protocol (IPMVP) Option A, which provides for deemed savings values and verification of installations for prescriptive measures included in approved measure lists.

The independent evaluator still will be responsible for determining program savings based on independent verification of installation of these measures. 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.

## **5.5. Establish Benchmark Net-to-Gross Values**

In addition to deeming certain measure savings values, the Ameren Illinois Utilities propose that the Commission adopt deemed values for program net-to-gross ratios. These values would be used by the evaluator in estimating program net savings. The net-to-gross ratios that we propose the Commission deem as appropriate are the standard values used for program planning in California, and are specified in the California Energy Efficiency Policy Manual. These values are the product of substantial evaluation research and review. The Ameren Illinois Utilities also propose that the Commission explicitly define the net-to-gross ratio as the sum of free rider and spillover effects. The specific net-to-gross ratios that the Ameren Illinois Utilities proposes be deemed are included in the testimony of the Ameren Illinois Utilities witness Val Jensen.

As its budget allows, the evaluator is expected to conduct net-to-gross studies that would update the deemed values proposed by the Ameren Illinois Utilities. Those updated values should be used by the Ameren Illinois Utilities for planning purposes and by the evaluator for calculating program net savings in future years. For the reasons articulated in Section 1 of the Plan and further explained in the testimony of Mr. Jensen, failure to establish net-to-gross ratio estimates prior to the beginning of program implementation, subjects the Company, trade allies and customers to significant uncertainty and risk. Retroactive application of net-to-gross ratio estimates different from those used for planning purposes can mean the difference between meeting savings goals and not meeting them as a function of nothing more than a calculation by the evaluator based on, at best, limited data.

## **5.6. Verification and Due Diligence of Project Savings**

The Company will work with implementation contractors 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.

## **5.7. 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 master evaluation contractor will determine program and portfolio impacts based on the evaluation protocols and individual program evaluation plans developed by the evaluator. 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 the evaluation given limited evaluation funds, final program designs and implementation plans will include detailed recording, tracking and reporting protocols.

## **5.8. 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.

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## 6. Implementation Planning

Implementation of the energy efficiency 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.

#### 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 program design with customers through targeted market research. 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. 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.
- 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.

#### 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.

### **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

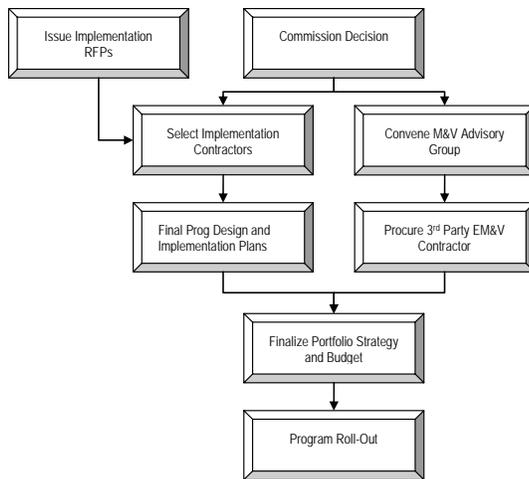
The Company currently is evaluating whether the required functionality is most efficiently and cost-effectively obtained through modifications to legacy systems or a third party system.

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. The Company does not intend to implement online incentive application and payment processes initially.

## **6.2. Program Level**

The process for developing and implementing the efficiency programs in the portfolio will typically follow the process diagrammed 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 December 2007. The Company will evaluate these bids coincident with the Commission’s review of its Plan, and will select contractors based on best value offered to the Company, subject to the Commission’s approval of the Plan. Where appropriate and to the extent that it would strengthen program delivery and reduce costs, the Company will coordinate the selection of contractors with ComEd.

We anticipate contracts for the following:

- Business energy solutions. Bundled delivery of prescriptive and custom incentives and retro-commissioning services. We believe the most effective commercial and industrial program is the one that offers a broad range of solutions without requiring the customer to sort through a variety of specific program offerings. This program suite also will likely include one or more technical assistance and training programs such as Building Operator Certification (BOC) training.
- Commercial new construction. New construction programs typically work through different channels than retrofit and equipment replacement programs.
- Residential appliance recycling. This program has unique requirements that are not easily bundled with other residential programs.

- Residential mid- and upstream programs. The proposed residential lighting program most likely will be delivered through retail channels as would most other residential appliance programs. Currently, the Company plans to have a single contractor manage all mid- and upstream consumer products programs offerings.
- Residential energy solutions. All program initiatives aimed at the residence (home and apartment) would be managed through a single contract. As with the commercial energy solutions approach, the Company believes that customer service and program effectiveness is maximized by integrating all residence-focused programs under a single implementation contract.

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 the program will be a recalculation of program element cost-effectiveness to ensure that the program continues to pass the Illinois 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 put in-place the elements needed for program and portfolio management. Once 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 Residential and Business program managers 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. The Company will review the performance of all contractors and will add or subtract contractors as needed.

### **6.4. Portfolio Implementation Schedule**

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

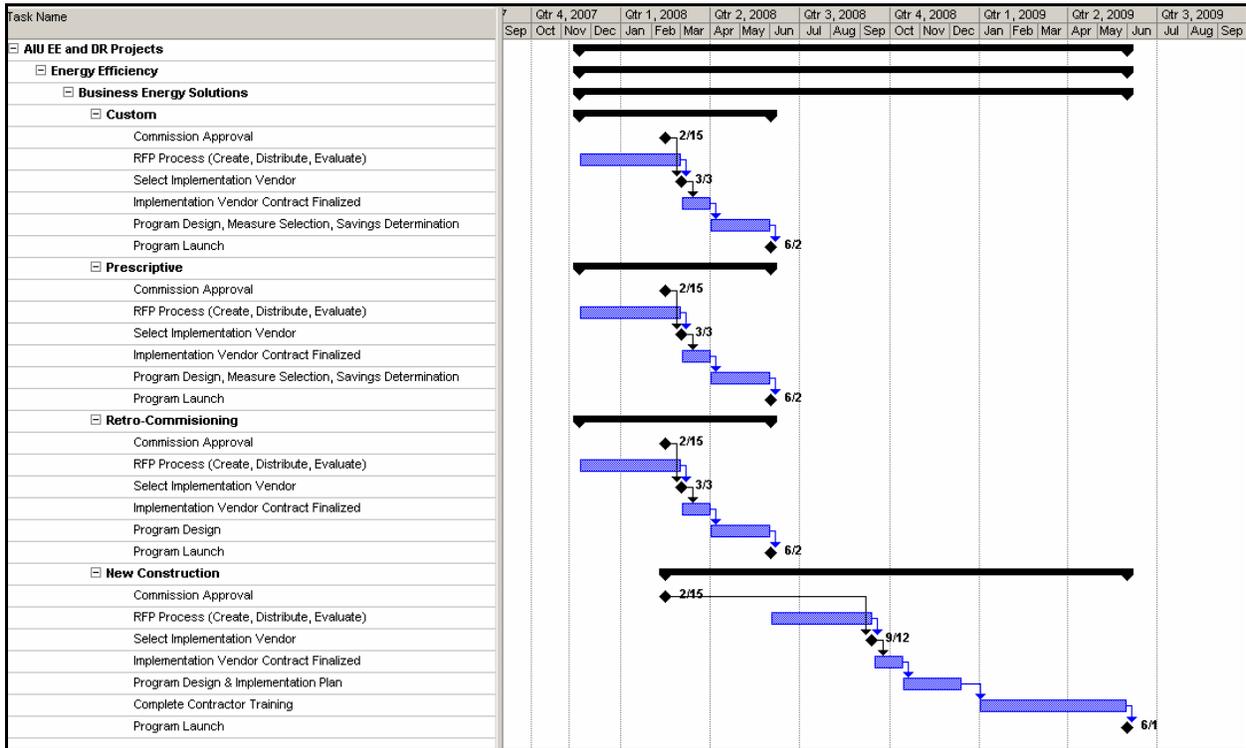
A phased-in deployment of the efficiency programs is necessary for an orderly development of programs in a cost effective manner. Attempting to deploy all proposed programs simultaneously in June would over-extend management resources. Through the use of Implementation contractors, the Company intends to roll-out the street light replacement program as well as the majority of Residential Energy Efficiency Solutions and Business Energy Efficiency Solutions during the months of June, July and August in 2008. 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 Company will initiate a second phase of programs in 2009, the programs included in this phase are the Commercial New Construction Program, the Residential Diagnostic and HVAC Tune-up Program and the Residential New HVAC program. The Company opted to push these programs to the second phase of program launches due to the lag time required to complete training for contractors and retailers.

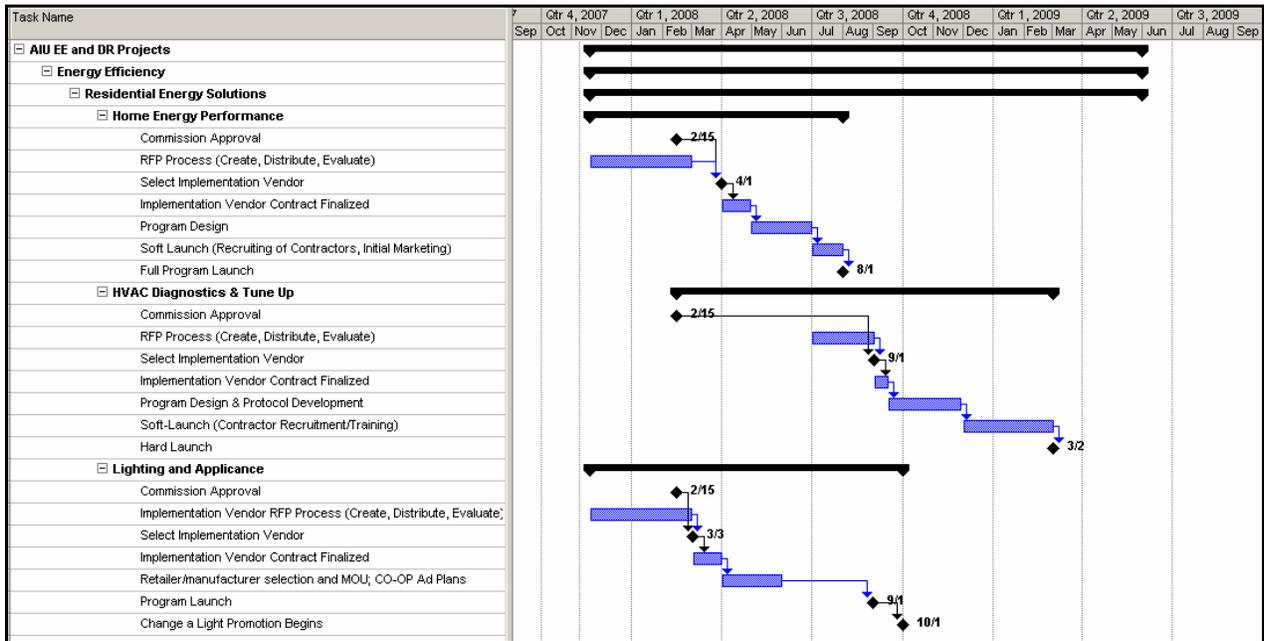
The proposed portfolio implementation schedule is shown in Figure 6 through Figure 10. A detailed implementation plan incorporating the steps described above will be prepared following Commission approval.

## 6. Implementation Planning

**Figure 6: AIU Business Energy Efficiency Implementation Timeline**

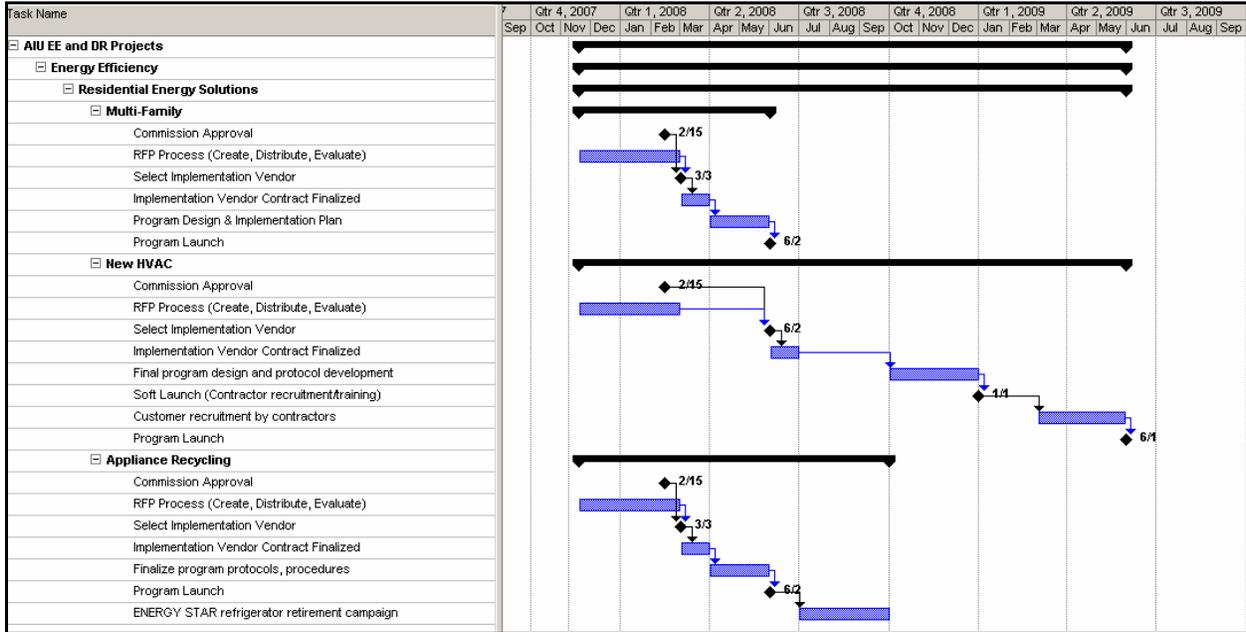


**Figure 7: AIU Residential Energy Efficiency Implementation Timeline (1 of 2)**



## 6. Implementation Planning

**Figure 8: AIU Residential Energy Efficiency Implementation Timeline (2 of 2)**



**Figure 9: AIU Street Light Implementation Timeline**

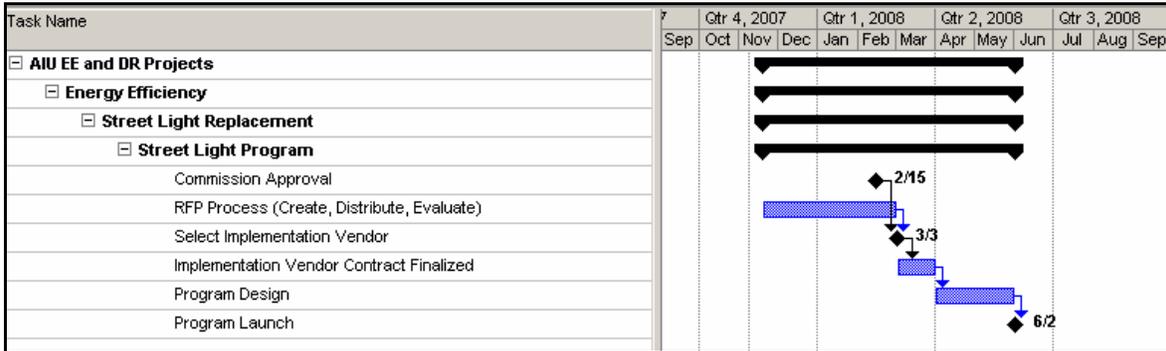
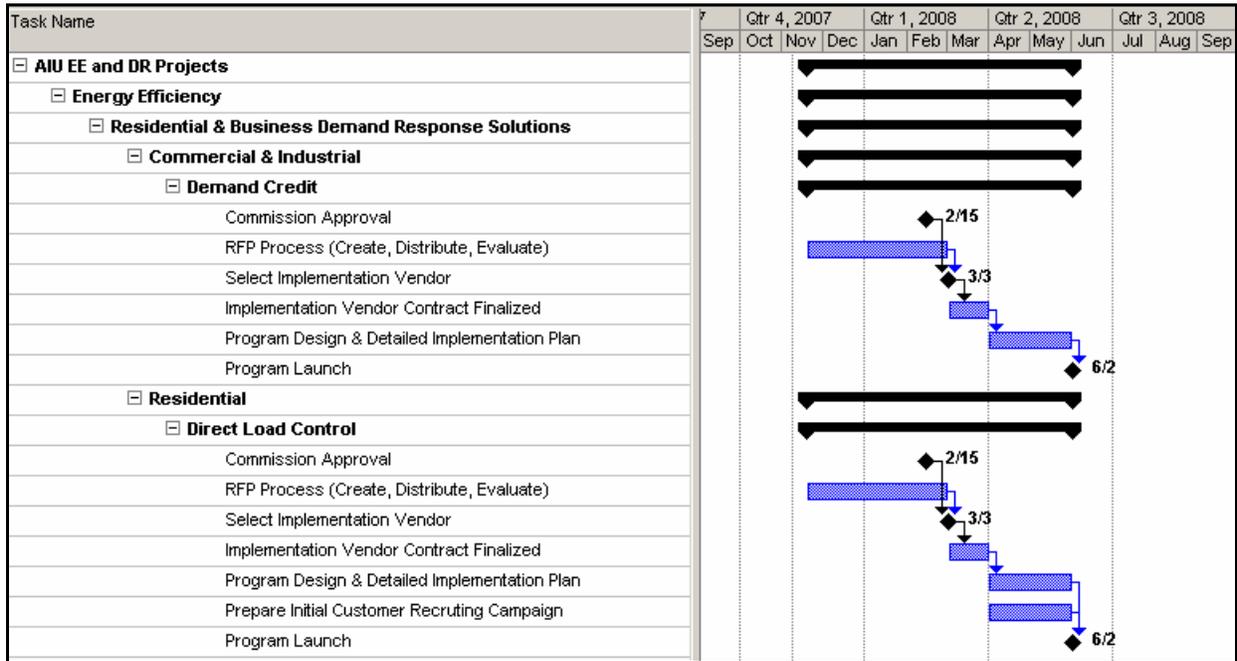


Figure 10: AIU Residential and Business Demand-response Implementation Timeline



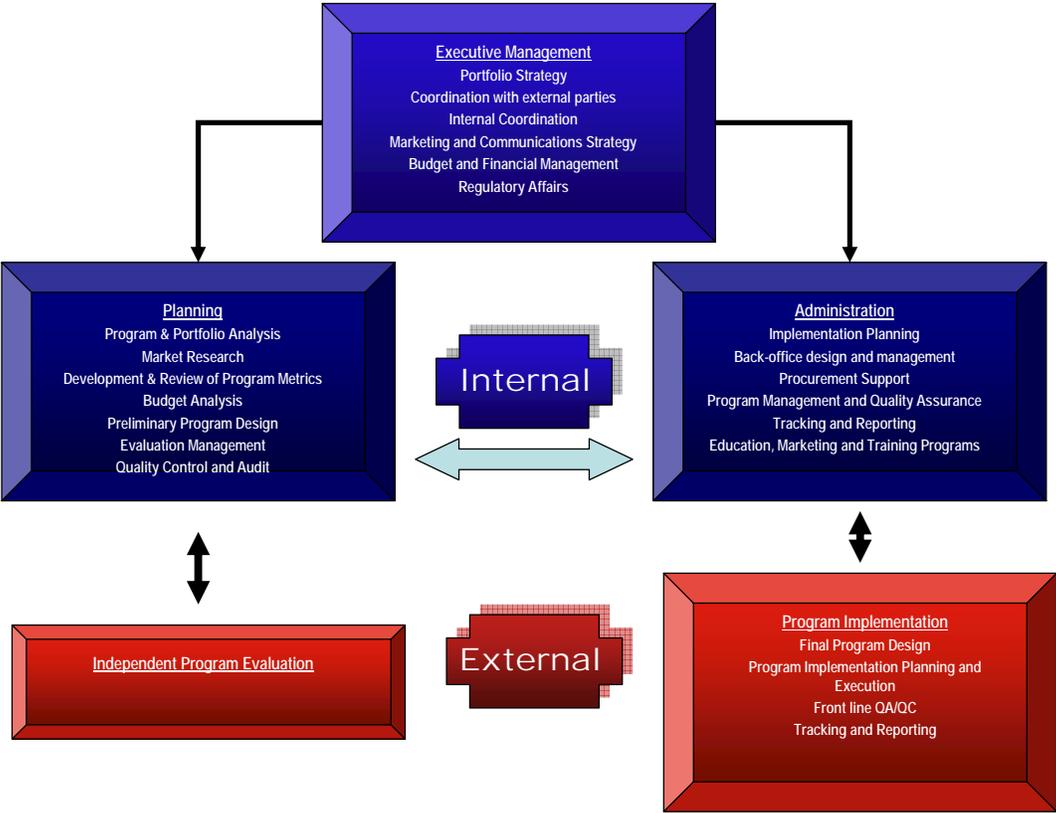
# 7. Portfolio Management

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 at least annually.
- **External Coordination:** Communicate the Company's strategy and progress to the ICC and key external stakeholders. Manage collaborative efforts with external stakeholders related to ongoing portfolio design and EM&V activities.
- **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 approval 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 energy efficiency 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. Prepare annual reconciliation filings.
- **Preliminary 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

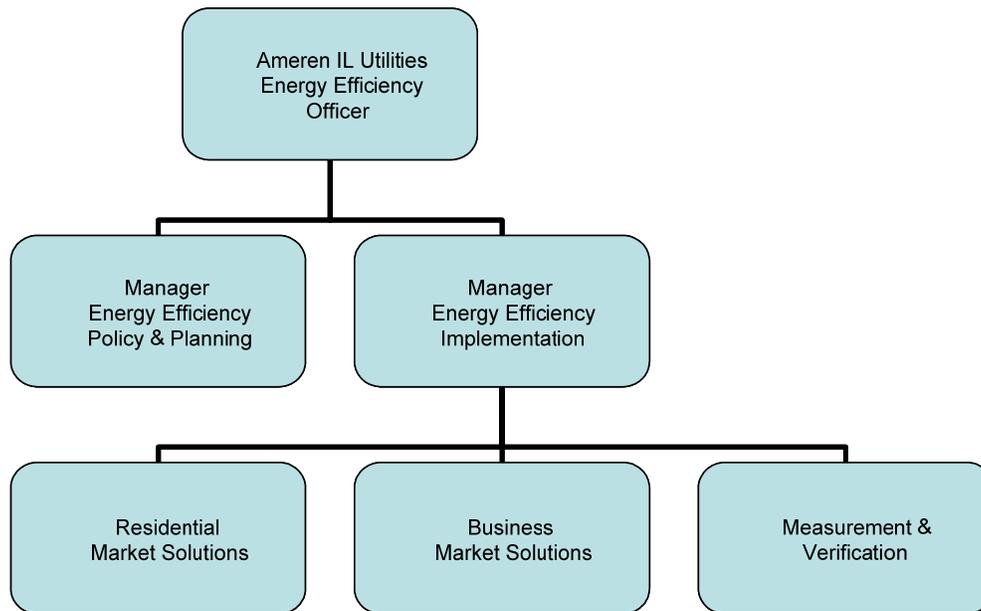
performance or customer service issues. This function also will manage third party contractors hired to perform verification services for certain programs (e.g. C&I Custom Incentive).

#### 7.1.4. Program Implementation—External/Internal

For most programs proposed, the Company intends to hire 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: AIU 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 to determine program and portfolio cost-effectiveness as defined by Public Utilities Act 95-0481. Each of these steps is described below.

#### A.1. Cost-Effectiveness Defined

Senate Bill 1592 as enrolled requires that each utility,

*Demonstrate that its overall portfolio of energy efficiency and Demand-response measures, not including programs covered by item (4) of this subsection (f), are **cost-effective using the total resource cost test** and represent a diverse cross-section of opportunities for customers of all rate classes to participate in the programs.*

The Act defines the total resource cost test as follows:

*“Total resource cost test” or “TRC test” means a standard that is met if, for an investment in energy efficiency or Demand-response measures, the benefit-cost ratio is greater than one. The benefit-cost ratio is the ratio of the net present value of the total benefits of the program to the net present value of the total costs as calculated over the lifetime of the measures. A total resource cost test compares the sum of avoided electric utility costs, representing the benefits that accrue to the system and the participant in the delivery of those efficiency measures, to the sum of all incremental costs of end-use measures that are implemented due to the program (including both utility and participant contributions), plus costs to administer, deliver, and evaluate each demand-side program, to quantify the net savings obtained by substituting the demand-side program for supply resources. In calculating avoided costs of power and energy that an electric utility would otherwise have had to acquire, reasonable estimates shall be included of financial costs likely to be imposed by future regulations and legislation on emissions of greenhouse gases.*

The total resource cost (TRC) test as it is commonly understood is defined by the California Standard Practice Manual, developed by the California Public Utilities Commission (CPUC). The test was designed by the CPUC to account for all costs and benefits reasonably expected to accrue as the result of the implementation of a demand-side program. The general form of the TRC as defined by the CPUC is as follows:

TRC = Benefits/Costs

$$BTRC = \sum_{t=1}^N \frac{UAC_t + TC_t}{(1+d)^{t-1}} + \sum_{t=1}^N \frac{UAC_{at} + PAC_{at}}{(1+d)^{t-1}}$$

$$CTRC = \sum_{t=1}^N \frac{PRC_t + PCN_t + UIC_t}{(1+d)^{t-1}}$$

Where:

BTRC=Benefits of the program

CTRC=Costs of the program

UAC<sub>t</sub>=Utility avoided supply costs in year t

UIC<sub>t</sub> =Utility increased supply costs in year t

PRC<sub>t</sub>=Program Administrator (Utility) program costs in year t

PAC<sub>at</sub> =Participant avoided costs in year t for alternate fuel devices (costs of devices not chosen)

UAC<sub>at</sub>=Utility avoided supply costs for the alternate fuel in year t

TC=Tax Credits

PCN=Net Participant Costs

The second term in the benefits equation represents the non-electric savings that might result from the implementation of a program designed primarily to save electricity. For example, UAC<sub>at</sub> could represent the natural gas savings that would be realized in a home as the result of implementing energy efficiency measures intended to reduce the home's cooling load. A common and potent energy efficiency measure is the sealing of a home's heating and cooling ducts to reduce losses. While an electric utility would be interested in this measure as a way to reduce air conditioning consumption (fewer losses mean a central air conditioner needs to run less, thereby using less electricity), the measure also would reduce heating losses during the winter, thus saving gas as well.

When these other fuel saving are included in the TRC test, the net result typically is that energy efficiency measures that affect a building's heating/cooling load are more cost-effective. In some cases, measures that would not be cost-effective when considering only electric or only gas savings become cost-effective when both sets of savings are considered.

The Illinois version of the TRC test, by explicitly stating that benefits are determined by avoided electric utility costs implies that any other fuel savings cannot be considered. The equation for the Illinois TRC test, therefore, is:

$$BTRC = \sum_{t=1}^N \frac{UAC_t}{(1+d)^{t-1}}$$

$$CTRC = \sum_{t=1}^N \frac{PRC_t + PCN_t + UIC_t}{(1+d)^{t-1}}$$

The effect of excluding other fuel savings is that fewer measures and programs will be cost-effective.

## 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 purchasing 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 California Database for Energy Efficiency Resources (DEER) <http://www.energy.ca.gov/deer/>. This database is maintained by the California Energy Commission 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 the Ameren Illinois Utilities, DCEO and ComEd.

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

These end uses were disaggregated by four housing types:

- Single family
  - Gas space heating with central air conditioning
  - Electric baseboard resistance heating with central air conditioning
  - Electric heating and cooling with a heat pump.
- Multifamily
  - Gas space heating with central air conditioning

Finally, these end uses were represented as being installed in an existing home and a new home built to ENERGY STAR levels.

- 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
  - Process (multiple SIC codes). 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](http://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.<sup>1</sup> The first step in the simulation process was to develop a representative set of building prototypes. These were:

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<sup>1</sup> 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

- Residential sector
  - 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

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 Ameren Illinois Utilities service territory. Each building prototype was then benchmarked in its baseline configuration against Ameren Illinois-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 Ameren Illinois 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 costing periods described below.

Appendix B 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 a cost-effectiveness screen. The general form of the Illinois TRC test was described above. In the case of measure screening, program administrator costs – variable *PRC* in the equations above – are set to zero, since by definition there are no program costs incurred at this stage.

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

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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.

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- We obtained avoided energy and capacity costs for relevant costing periods. Ameren Illinois 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 costing 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 carbon of \$15 per ton beginning in 2012.
- The hourly savings were aggregated into these same 36 costing 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 load shapes that ICF had obtained from the Itron e-Shapes database. These load shapes show electric consumption by end use and sector. We normalized these values and then multiplied the hourly fraction of annual use by the annual measure energy savings to yield estimates of hourly use by measure within end uses. These hourly values were then aggregated into the 36 costing periods by matching hours. The 36 values for avoided energy costs are then multiplied by the 36 costing period percentages to obtain a single annual value for avoided energy costs. 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 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 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 Total Resource Cost test benefit-cost ratio.

The measure screening showed 222 residential and 732 commercial and industrial measures to be cost-effective. The TRC screening results for all measures are shown in Appendix B.

## **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 which are described in more detail to follow.

### ***A.4.1 Measure Bundling***

The objective of measure bundling is to group measures into logical bundles representing “program types”. A program type is a general classification that references the types of measures that might be offered within a program targeted at a specific market. For example, residential lighting and appliance measures passing the Illinois TRC 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 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 the Ameren Illinois Utilities. The program types reviewed by the Ameren Illinois Utilities are drawn from a review of a number of well-respected assessments of program best practice such as ACEEE's compendium of Exemplary programs, and reviews of program best practice sponsored by the California Public Utilities Commission and the Energy Trust of Oregon. It also is based on a review of the types of programs implemented by utilities 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 those utilities have had much more experience and therefore may be pursuing more complex programs than would be prudent for the Ameren Illinois Utilities. 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.

Appendix D includes tables that illustrate how the measures that passed the screening process were bundled into program types.

In addition to designing program bundles that represented what we consider to be best practice, we also sought a balance of programs for the portfolio between those programs that could be ramped up quickly, deliver immediate savings, and were relatively inexpensive (Quick-Star/High Yield) and those that required more development time and were more expensive per unit of energy saved but ultimately would deliver a significant portion of the portfolio's savings (Medium Yield/Market Building).

#### ***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 programs. Absent specific examples from comparable utility programs, an initial assumption was made that program administrative costs represented approximately 30% 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 30% 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 30% 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. The participation estimates used for each program are Company assumptions. The

assumptions were based first on judgments regarding the relative difficulty associated with recruiting customers for specific program elements, the levels of savings expected from the program elements given assumed baseline market conditions, and the complexity of the program elements. The Company focused initially on participation rates for program elements expected to yield the largest shares of program energy savings initially given the nature of the measures, participant cost-effectiveness, the experience of other utilities and so forth. In the Ameren Illinois Utilities case, the four key program elements are Residential Lighting, C&I Prescriptive Incentives (and within that element, standard lighting measures), C&I Custom Incentives and Residential Appliance Recycling. Participation rates for the first two programs were adjusted up to a level that yielded numbers of installations that are consistent with what at least several other utilities have been able to achieve based on available evaluation reports. Participation rates for other programs were then adjusted to fill in any shortfall in MWh, taking into account the relative complexity of the program and its expected program costs.

These participation rates are applied across all measures within a program element. The participation rate is applied to the estimated number of eligible measures per 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 only 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. Very little data for the Ameren Illinois Utilities service territory were available to support this calculation. For the residential sector, the MEEA 2003 Illinois Residential Market Assessment was used to provide data on

relevance, technology units per sector and the not-yet-adopted fractions. Total sector units were based on the Ameren Illinois Utilities customer and sales data. Commercial and industrial sector data were largely unavailable for the Ameren Illinois territory. Total sector units were derived from very basic sector sales data for Ameren Illinois Utilities, U.S. Energy Information Administration data on the regional breakdown of C&I sales by building type, SIC code, and end use. A recent Kema analysis of energy efficiency potential provided for Xcel's Colorado territory was used to develop estimates of technology units per sector, technical applicability and the not-yet-adopted fraction. The values for these variables are included with the measure descriptions in Appendix B.

- **Incentive costs** – including the financial incentive costs as well as the value of any equipment and labor associated with direct installation of measures. Incentives were set in one of two ways. Incentives were directly set as a dollar amount per measure in for a relatively small set of the most common measures expected to be implemented, such as CFLs and T8/Super T8 commercial lighting. These levels were based generally on a review of the incentive levels offered by other utilities. For the rest of the measures, the incentive level was calculated as the amount required to reduce customer payback levels to 1.5 years for commercial and industrial 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.
- **Savings adjustment factors.** The gross savings realized by a program are equal to the per unit measure savings multiplied the number of measures installed. However, it is almost universally the case that not all measures incented through a program actually are installed and work properly. Therefore, they produce no savings. Program evaluations are used, in part, to verify installations, and typically will derive a “verified gross savings” estimate. The factor used to translate gross savings into verified gross savings is called the realization rate. Often this phenomenon is not addressed in program planning – one simply assumes that the estimated level of participation is realized. However, given that the Company is held to strict annualized energy savings targets, accounting for the uncertainty in forward-looking energy savings estimates is critical. Use of a realization rate in a planning process allows us to account for two factors; first, that actual participation in a program will turn out to be lower than we estimate, and second that actual installations will be less than the number of participants. Most important, inclusion of this rate in the energy savings calculation enables us to use this variable in a more formal uncertainty analysis (described below). This rate was set to 0.95 for all program elements. This level is arbitrary, though realistic. Realization rate data are not widely reported except in some jurisdictions and show a wide variance, even within program types. However, many programs show realization rates of greater than 1.0.

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 verified gross program savings by what is known 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).

Appendix D provides a listing of the program cost and participation assumptions for each program element.

## **A.5. Program Screening**

Once program data were assembled, the program elements were screened for cost-effectiveness using the Illinois 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 Illinois TRC test benefit-cost ratio

Appendix D also shows the cost-effectiveness results for each program element.

## **A.6. DCEO Integration**

DCEO provided a list of programs that it proposed to operate under the Ameren Illinois portfolio, as well as assumptions required to conduct the Illinois TRC test on the programs. Two programs, a public sector custom incentive programs and a public sector prescriptive program initially did not contain sufficient measure level data to allow ICF to calculate test results. Based on discussions with DCEO, the programs were reconfigured to contain the same mix of measures as is used in the Ameren Illinois Utilities and ComEd custom and prescriptive program elements, thereby enabling the calculation of the test results.

The following table shows the programs proposed by DCEO and the Illinois TRC test results. Note that the programs in bold are those targeted at low income customers. By Act these programs are not required to pass the TRC test to be eligible for inclusion in the portfolio. The assumptions used to develop the DCEO programs, with the exception of the custom and prescriptive measure level data, are provided by DCEO in a separate filing.

<b>Program</b>	<b>TRC</b>
DCEO Public Sector Prescriptive	1.62
DCEO Public Sector Customized Program	3.04
DCEO Public Retrocommissioning	4.47
DCEO Lights for Learning	2.74
<b>DCEO Low Income New Const. Gut Rehab</b>	<b>0.59</b>
<b>DCEO Low Income EE Moderate Rehab (MF)</b>	<b>0.50</b>
<b>DCEO Single Family Rehab</b>	<b>0.32</b>
<b>DCEO Low Income Direct Install</b>	<b>0.63</b>
DCEO Smart Energy Design Assistance Program	-
DCEO Manufacturing Energy Efficiency Program	-
DCEO Building Industry Training & Education	-
DCEO Public Sector New Construction	4.52

## A.7. Portfolio Construction

Once program elements were screened, those non-low income programs passing the Illinois 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 targets would be met at or below the spending cap. 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 as well, including the management of various portfolio risks. Generally, the steps followed in designing the final portfolio included:

- Setting general participation and budget levels for quick-start/high-yield program elements. These elements included Residential Lighting Incentives, Residential Appliance Recycling, Business Prescriptive Incentives, Business Custom Incentives and the Small Business CFL Introductory Kit. Based on our review of the programs implemented by other utilities, it was clear that the majority of early savings would come from these programs, and that these were the program elements that could be designed and brought on-line quickly. Initially, participation rates and program costs including incentives were set based on a review of similar programs managed by other utilities. With respect to lighting measures, which are expected to make up the majority of measures installed over the first three years, estimated measure counts based on participation levels were compared with actual measure counts for Pacific Gas and Electric and Southern California Edison – two comparably-sized utilities.

- Setting participation rates and budgets for medium yield/market building programs elements. These elements included Residential HVAC Tune-ups, Residential New HVAC, the Residential Advanced Lighting Package for New Construction, Commercial Building Retro-commissioning and Commercial New Construction. These program elements are key to the Company's overall residential and business solutions offerings, help capture lost opportunity savings, and provide portfolio diversity. At the same time, these elements are aimed at pockets of energy efficiency potential that are smaller and often somewhat more challenging to tap than those targeted by the quick-start elements, and the programs tend to be more expensive. Our approach to setting participation levels generally was based on judgment regarding the levels of participation that the Company believed it could achieve and the associated program costs. Participation rates were boosted in years two and three with increases in the spending cap, with the intent of lowering the contribution of simple lighting technologies to the portfolio and the need to position these market building programs for more rapid growth in years four through six.
- Setting spending levels for cross-cutting activities. The quick-start and market building program elements are essential to meeting the energy savings targets. However, if we are to position the portfolio to create sustained long-run value for customers and to enable customers to take increased responsibility for energy management, incentive-based programs must be coupled with solid educational, awareness-building, training and technology innovation investments. In addition, the portfolio budget must set aside three percent of total funds for evaluation activities. The Company assumed a target for total cross-cutting initiatives and portfolio management costs of 15 percent based on a review of available portfolio budget data from We Energies (14.9%), and United Illuminating (20%). Target spending for portfolio administration was set at 5% over the three-year period, recognizing that in relative terms costs would be higher in early years given start-up costs and lower spending targets. The sum of cross-cutting and portfolio management costs net of evaluation costs was adjusted as necessary to ensure that energy savings targets would be met with a small margin.
- Once initial assumptions were set, the DCEO portfolio was added, and Ameren Illinois' energy savings and costs were backed down to ensure that the total energy savings targets were met within the cost cap. Program element costs were reviewed in more detail for certain program elements to ensure that sufficient incentives were being provided (primarily within the Commercial Retro-commissioning and Commercial New Construction program elements where incentives are performance- rather than measure-based. Participation rates also were adjusted to reflect stakeholder concerns that insufficient savings were being projected for retro-commissioning and new construction program elements.

## **A.8. Risk analysis**

Implementation of an energy efficiency portfolio is characterized by a variety of performance, technology, market and evaluation risks. Although the assumptions used to prepare the Plan are based on best available data and the experience of other program administrators, inevitably actual implementation experience will yield results that differ from planning assumptions. Given that the portfolio must achieve specific savings targets, an analysis of these risks is crucial as part of the planning process to identify and then mitigate or manage away from risks where possible and cost-effective.

ICF performed a risk analysis of the Ameren Illinois Utilities energy efficiency portfolio, in conjunction with DCEO's portfolio, as part of the overall analysis to identify risks to the portfolio's ability to achieve the savings goals in Section 12-103(b) of the Public Utilities Act. The risk analysis was performed because there are many uncertainties that characterize the overall analysis. For example, if the values that we have used to represent energy efficiency measure savings are incorrect, if program participation is not what we estimate or if the net-to-gross ratios calculated by the independent evaluator are different than those that we have used in our analysis, the verified net savings estimated by the evaluator could be different than what we have estimated. Performing a risk analysis of the portfolio identifies uncertainties that contribute the most to portfolio risk. Using these data, the Company can make informed decisions that balance risk with the need to meet hard savings targets. Data from portfolio risk analysis can also be used by the Company and evaluators to target evaluation research on programs that present the greatest risk to the Company.

For this analysis, an **uncertainty** is defined as a measurement of the quality of information about an event or outcome. Some future events are uncertain, but there is a significant amount of information about their likelihood, non-weather sensitive measure savings, for example. Other future events are less certain, such as program participation. The higher the quality of information we have about a future event, the more precisely we can estimate its outcome.

A **risk** is defined as a measure of bad outcomes associated with a given plan.

A **Monte Carlo simulation** is defined as a technique used in computer simulations that samples from a random number sequence to simulate outcomes with multiple possible values.

In this section, "**the portfolio**" refers to the combined the Ameren Illinois Utilities and DCEO energy efficiency portfolios.

The risk analysis was performed using the Excel-based ICF portfolio analysis model workbook as a platform and @RISK software, an Excel based product, to run Monte Carlo simulations.

### ***A.8.1 Uncertainties and Risks***

ICF built on work by the California Public Utilities Commission (CPUC) and Pacific Gas and Electric (PG&E) on energy efficiency portfolio risk in its risk analysis of the Company's portfolio. The CPUC and PG&E identified three key uncertainties associated with energy efficiency measure savings claimed by programs:

- Measure-specific projections (i.e. the annual energy savings resulting from implementing an energy efficient, instead of a baseline, technology);
- Projected installation counts; and
- Net-to-gross ratios (NTGRs).

In addition to defining probability distributions around these key uncertainties, ICF added a fourth uncertainty to the analysis based on the way the ICF model calculates energy savings. This fourth uncertainty is the engineering verification factor, which is defined as the estimated ratio of verified (evaluated) gross savings to program tracking gross savings corresponding to measures actually installed. Each measure's projected savings is the product of its per-unit savings value, projected installation count, NTGR and engineering verification factor. For the entire portfolio:

$$Savings = \sum^j (UnitSavings * UnitInstalls * NTGR * EngineeringVerificationFactor)$$

Where

Savings = Portfolio energy savings; and

j = Number of measures in the portfolio.

There is uncertainty around the values for each of these variables for every measure in the portfolio. Since there is a distribution of probable values for each of these variables, there is also a distribution of probable portfolio savings. The risk analysis identifies the uncertainties that contribute most to variance in probable portfolio savings.

The first step in estimating probability distributions around uncertainties in the portfolio was analyzing each uncertainty at the program or measure level, depending on the uncertainty. For every program or measure in the portfolio, ICF analyzed key factors contributing to the uncertainty of each variable. Based on that analysis, ICF set probability distributions around each uncertainty (unit savings, projected installations, NTGR and engineering verification factor) at the program or measure level. Ideally, these probability distributions would be based on observations of many actual values. Unfortunately, consistent data sets do not exist that would enable us to base the distributions on observed variation of values for identical programs. Therefore, the distributions were based on subjective evaluation of the relative uncertainty associated with the source of the initial values.

Unit savings uncertainty was analyzed largely at the measure level. The key factors used in analyzing unit savings uncertainty were the *source of the unit savings estimate* and the measure's *weather sensitivity*. Generally, non-weather sensitive measure savings estimates where the savings source was DEER were assigned the lowest levels of unit savings uncertainty.

Installation uncertainty was estimated largely at the program level. There were three key factors used in analyzing project installation uncertainty. The first and most important factor is uncertainty around each *proposed program's ability to get measures directly installed*. For example, the C&I New Construction program element was ascribed a low degree of uncertainty in its ability get measures directly installed because of the high degree of installation verification required for participants to receive rebates. Given that some program elements, such as Residential Lighting, are projected to contribute more to portfolio savings than other programs, and that more evaluation dollars will be spent researching the most important programs, ability-to-install uncertainty was weighted proportional to each program's projected contribution to total portfolio savings. Other key factors considered in the analysis of installation uncertainty were the *program participation rate*, and the *source of the baseline usage rate*. The program participation rate and the baseline usage rate were hardwired into the ICF model. Finally we considered the *applicability of the baseline usage rate estimate*, based on its source; for example, residential baseline usage rates applied in the ICF model were published in a study by the Midwest Energy Efficiency Alliance (MEEA), so ICF ascribed a low level of uncertainty to the study's applicability to the Illinois market.

Net-to-gross ratio (NTGR) uncertainty was estimated largely at the program level, and was based on ICF's confidence in the *source of the NTGR estimate*, the *applicability of the NTGR to the Company's program and the local market*, and the *uncertainty around an evaluator's ability*

*to conduct robust impact studies on the program.* Because the Company's evaluation budget is small compared to budgets in other states we generally ascribed modest levels of confidence in an independent evaluator's ability to conduct robust impact studies. However, since some program elements, such as Residential Lighting, are projected to contribute more to portfolio savings than other programs and since more evaluation dollars will be spent researching the most important programs, evaluation uncertainty was weighted proportional to each program's projected contribution to total portfolio savings. After the initial Monte Carlo runs, some CFL NTGR uncertainty bounds were set at the measure level, based on recent evaluation research on CFLs in California.

In some impact evaluation studies the engineering verification factor is applied to the NTGR, or attribution factor, to produce the program realization rate, which is the final net savings ratio the evaluator credits to the program. The engineering verification factor was not considered a key uncertainty in this risk analysis because most of the evaluation risk is captured in NTGR uncertainty.

The ICF team reviewed their assumptions about these uncertainties and made adjustments to some distributions based on professional judgment. These adjustments typically reflected program evaluation research findings, or the team's experience with the performance of particular measures or programs in other markets. Three rounds of such adjustments occurred during the course of the risk analysis. The first round of adjustments took place before the first Monte Carlo simulation was run. The second and third rounds took place after the first and second Monte Carlo runs, respectively.

Please note, Appendix E documents the process of setting uncertainty distributions in detail.

### ***A.8.2 Monte Carlo Simulations***

Once the uncertainties were established in the risk model<sup>2</sup>, ICF ran a Monte Carlo simulation using @RISK software. The simulation calculated 1,000 iterations of the portfolio to arrive at a distribution of probable energy savings over three years. Following the simulation, ICF used @RISK's sensitivity analysis function to analyze the data. The sensitivity analysis function regresses the input data (uncertainties) against the output data (energy savings). The regression coefficients reflect the sensitivity (responsiveness) of the output variable to each input variable.

The first simulation showed portfolio savings highly sensitive to NTGR and installations of CFLs in the residential and commercial sectors. The NTGR for recycled refrigerators was also a statistically significant uncertainty. Following the simulation, ICF conducted a round of adjustments to uncertainties, including adjustments to NTGR uncertainties for residential CFLs based on recent evaluation findings on lighting programs in California.

Results of the second simulation still showed that savings were most sensitive to residential and commercial lighting NTGR and installations, primarily low and medium wattage CFLs. The NTGR for recycled refrigerators was also still an important uncertainty. Following the second simulation, ICF conducted a final round of adjustments to uncertainties.

#### ***Results and Analysis***

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<sup>2</sup> The risk model uses a subset of worksheets from the ICF portfolio planning model to conduct the risk analysis.

Based on the output of the third Monte Carlo simulation, critical uncertainties remained those associated with residential and commercial CFL NTGRs and projected installation counts (participation). There was also a significant amount of uncertainty around refrigerator recycling NTGR and projected recycling counts. Finally, the analysis showed that occupancy sensors are a measure associated with a statically significant amount of portfolio uncertainty.

**Error! Reference source not found.**3 shows the results of the sensitivity analysis using data from the third Monte Carlo Simulation. @RISK uses multivariate stepwise regression in the sensitivity analysis to test the statistical significance of each input variable on the output variable. The uncertainties shown in the table are listed in descending order of statistical significance, and the R-squared value indicates the degree to which the, inputs (uncertainties) in the model explain the output variable (kWh savings). A regression coefficient of zero indicates that there is no significant relationship between the input and the output while a coefficient of one or minus one indicates a one or minus one standard deviation change in the output for a one standard deviation change in the input. An R-squared of one would indicate that the inputs fully explain the output variable. The R-squared value for this analysis, 0.84, indicates that the inputs in the model explain a large majority of the variance in kWh savings.

**Table 13: Statistically Significant Uncertainties in the Portfolio**

Rank for Risk inputs	Uncertainty: Program, Measure Name	Subsector	kWh / RISK OUTPUT Regression Coefficient
#1	INSTALLATIONS: C&I Prescriptive, Integral CFL, screw-in	Other	0.39
#2	NTG: C&I Prescriptive, Integral CFL, screw-in	Other	0.35
#3	INSTALLATIONS: C&I Prescriptive, Integral CFL, screw-in	Other	0.28
#4	NTG: C&I Prescriptive, Integral CFL, screw-in	Other	0.24
#5	INSTALLATIONS: C&I Prescriptive, Integral CFL, screw-in	Other	0.24
#6	NTG: Residential Appliance Recycling, Refrigerator recycling	Detached	0.23
#7	NTG: C&I Prescriptive, Integral CFL, screw-in	Other	0.19
#8	INSTALLATIONS: DCEO Public Sector Prescriptive, Integral CFL	Education	0.18
#9	INSTALLATIONS: Residential Lighting & Appliances, 13 Watt Integral CFL	Multifamily	0.17
#10	NTG: DCEO Public Sector Prescriptive, Integral CFL, screw-in	Education	0.17
#11	INSTALLATIONS: C&I Prescriptive, Occupancy sensor -	All	0.16
#12	NTG: C&I Prescriptive, Occupancy sensor -	Industrial	0.16
#13	INSTALLATIONS: C&I Prescriptive, Integral CFL, screw-in	Other	0.15
#14	INSTALLATIONS: Residential Appliance Recycling, Refrigerator	Detached	0.14
#15	NTG: DCEO Public Sector Prescriptive, Integral CFL, screw-in	Education	0.14
#16	kWh: C&I Prescriptive, Integral CFL, screw-in	Other	0.14
#17	NTG: DCEO Public Sector Prescriptive, Integral CFL, screw-in	Education	0.12
#18	kWh: Residential Lighting & Appliances, 13 Watt Integral CFL	Multifamily	0.12
#19	INSTALLATIONS: DCEO Public Sector Prescriptive, Integral CFL	Education	0.11
#20	NTG: C&I Prescriptive, Integral CFL, screw-in	Other	0.10
#21	NTG: Residential Lighting & Appliances, 13 Watt Integral CFL	Multifamily	0.10
#22	INSTALLATIONS: DCEO Public Sector Prescriptive, Integral CFL	Education	0.09
#23	INSTALLATIONS: Residential Lighting & Appliances, 25 Watt Integral CFL	Detached	0.08
#24	INSTALLATIONS: Residential Lighting & Appliances, 18 Watt Integral CFL	Detached	0.08
#25	NTG: Residential Lighting & Appliances, 25 Watt Integral CFL	Detached	0.08
#26	kWh: Residential Lighting & Appliances, 25 Watt Integral CFL	Detached	0.07
		<b>R-Squared=</b>	<b>0.84</b>

The uncertainties contributing most to portfolio risk are not unexpected. CFLs constitute a significant portion of the portfolio, as they do portfolios in other states, because of their cost-effectiveness and market potential. Also, savings values for CFLs have been well established through independent research, which means that little risk lies in the performance of the actual

technology and falls instead on program performance—net-to-gross and participation. Relying on CFLs so heavily over the next three years is a risk the Company must take because reducing their prevalence in the portfolio corresponds to a drop in savings that no other measure or combination of measures can cost-effectively makeup. Mitigating this risk through significant changes in the portfolio would impose significant costs on the portfolio making it unlikely the portfolio could reach its targets. Nevertheless, based on the results of the uncertainty analysis, the portfolio was rebalanced with increased reliance on the business custom incentive program and retro-commissioning.

The sensitivity around refrigerator recycling is driven by the fact that savings for the measure are relatively high *and* that there is a large market potential for this measure in Ameren Illinois 's territory. Special attention will need to be paid to the performance of the Residential Appliance Recycling program element by Ameren Illinois in order to insure program managers are maximizing participation. It will also be important to allocate adequate evaluation spending towards the program so the evaluator can develop robust impact estimates.

Finally, the sensitivity around occupancy sensors is due to the large market potential for this measure in Ameren's territory. Uncertainty around NTGRs and installations in general is exacerbated by the knowledge that the program evaluator, once chosen, will have a small budget to carry out their research that NTGRs studies are among the most expensive elements of impact evaluation, particularly when they properly address spillover, and that valid NTGR estimates depend on having a substantial sample size that can accommodate necessary stratification.

In addition to verifying program savings through impact studies, evaluators help program managers run their programs more effectively by recommending changes to programs based on impact, process and market research findings. Effective programs filter out free-riders, and install more measures, maximizing the NTGR given program budget and market constraints. Evaluators can do a better job helping programs filter-out free-riders if they have sufficient budget to conduct robust impact, process and market studies.

Measuring spillover in addition to free-ridership decreases uncertainty around NTGRs. It is standard practice in most states and reflects programs impacts on consumer choices to purchase efficient products without incentives.

In summary, despite the risk, relying heavily on CFLs in the Ameren Illinois portfolio is necessary, as no other measure or set of measures can produce savings as quickly or cost-effectively. The uncertainty around CFL NTGRs and installations would decrease if the Company had a larger evaluation budget because evaluators would be able to conduct more robust evaluations and better help programs filter-out free-riders and increase installations. Including spillover in NTGRs will decrease uncertainty in general around evaluations by crediting programs with the influence they have on consumer behavior beyond rebates. Finally, refrigerator recycling is an important measure with considerable potential in Ameren Illinois's territory and the company will need to focus adequate resources, in terms of management and evaluation, toward maximizing participation in the Residential Appliance Recycling program element.