NAVIGANT

Energy Efficiency / Demand Response Plan: Plan Year 3 (6/1/2010-5/31/2011)

Evaluation Report: Cost-Effectiveness Summary Report

Presented to

Illinois Department of Commerce and Economic Opportunity

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Presented by

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DCEO TRC Results

This section describes the model used to calculate cost effectiveness for DCEO's energy efficiency programs. Cost effectiveness is assessed through the use of the Illinois Total Resource Cost (TRC) test. The Illinois TRC test is defined in the Illinois Power Agency Act SB1592 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.[1]*

Navigant developed an Excel based TRC model that incorporates various data points required to calculate the program level TRC. These data points include both generic and program specific categories. Table 1 below provides an overview of the generic and program specific data points as well as the source for each.

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[1] Illinois Power Agency Act SB1592, pages 7-8.

Table 1 – Data Points Used to Calculate TRC

Category	Data Point	Source
Generic	- Avoided energy costs ($/kWh) - Avoided capacity costs ($/kW) - Discount Rate - Line Losses - Escalation Rates CO_2 costs	ComEd and Ameren
Program Specific	- Participants - Verified Ex-Ante Energy Savings (kWh) - Verified Ex-Ante Capacity Savings (kW) - Realization Rate - Net to Gross Ratio - Measure Life - Incremental Costs	Navigant
	- Implementation Costs - Utility Admin Costs - Utility Incentive Costs	DCEO

The excel based TRC model calculates the annual benefits and costs over the life of each program and then discounts them to today's dollars using the appropriate electric distribution companies (EDC) weighted average cost of capital. The present value of benefits are then divided by the present value of costs to determine the TRC test result.

This document provides a description of each of the data points used in the DCEO TRC model followed by a summary of the results.

1.1 Generic Data Points

The DCEO programs are jointly funded through Ameren and ComEd and the savings that occur due to the programs are divided amongst each utility separately within each evaluation. In order to determine the benefit of the efficiency programs, Navigant used avoided cost data from each EDC to evaluate the benefit of the savings in each territory. This required a separate calculation of the benefits for Ameren and ComEd. The Generic Data Points shown in the following table were provided by each EDC.

Table 2 – Sources for Generic Data Points

Data Point	ComEd	Ameren
Avoided Energy Costs ($/kWh)	Updated DSMore file.	Based on Avoided Costs that were included in Ameren's 2008 filing for Cycle 1.
Avoided Capacity Costs ($/kW)	Updated DSMore file.	Based on Avoided Costs that were included in Ameren's 2008 filing for Cycle 1.
Discount Rate	WACC of 8.51% - Updated DSMore file.	WACC of 7.67% - Ameren communication with Navigant.
Line Losses	9.08% - Used for all programs – Updated DSMore files	Residential Programs – 6.72% Business Programs – 5.75% Ameren communication with Navigant.
Escalation	Escalation was based on annual escalation values included in DSMore files.	Embedded in Ameren's 2008 filing of avoided costs.
CO2 costs	$13.90 / MWh - Included in ComEd's last plan filing, value was based on NRDC analysis of Waxman-Markey and Kerry-Lieberman legislation, and PJM's 2009 marginal power plant emission rate.	Used value provided by ComEd.

1.2 Program Specific Data Points

The majority of the program specific data points used to conduct the TRC were taken either from the Navigant evaluations or provided by DCEO as shown in Table 1 with a few exceptions described below.

Measure Life & Incremental Cost

Measure life estimates were based on similar ComEd programs, third party sources including the California Public Utilities Commission (CPUC) developed Database of Energy Efficiency Resources (DEER) and previous Navigant evaluation experience with similar programs. Program costs data came directly from DCEO. Incremental costs were estimated from program, survey data and similar ComEd programs.

1.3 Results

The following table summarizes the benefits and costs for each program, the Public Sector focused programs, the Low Income sector focused programs as well as the portfolio as a whole.

Table 3 - Summary of DCEO Portfolio Benefits and Costs

Sector	Program	ComEd Benefits (000's)	Ameren Benefits (000's)	Ameren + ComEd Costs (000's)	Net Benefits (000's)	TRC
Public Sector	Lights For Learning	233	49	277	5	1.02
	Public Sector Custom	2,567	6,337	3,990	4,914	2.23
	Public Sector Prescriptive	11,558	6,526	15,230	2,855	1.19
	Public Sector New Construction	113	55	69	99	2.44
	Public Sector Retrocommissioning	160	289	327	122	1.37
	Building Operator Certification	2,262	163	2,193	231	1.11
	Total Public Sector	**16,893**	**13,419**	**22,086**	**8,226**	**1.37**
Low Income	Energy Efficient Affordable Housing Construction	512	336	3,455	(2,606)	0.25
	Low Income Residential Retrofit	2,975	2,786	7,717	(1,956)	0.75
	Public Housing Authority	419	360	1,951	(1,172)	0.40
	Total Low Income Sector	**3,906**	**3,483**	**13,123**	**(5,734)**	**0.56**
	Total Portfolio	20,799	16,902	35,209	2,492	1.07

Based on these inputs, the Illinois societal TRC for the Public Sector portfolio is 1.37 and the portfolio passes the Illinois TRC test. The low income programs are not required to meet the Illinois TRC test[2] and their TRC numbers are provided for informational purposes.

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[2] ILCS 220 5/8-103(a) and 5/8-104(a), which states "The low income measures described in section (f)(4) of this Section shall not be required to meet the total resource cost test."