



Review of EPY4 Total Resource Cost Test Assumptions

Energy Efficiency / Demand Response Plan:
Plan Year 4
(6/1/2011-5/31/2012)

Presented to
Commonwealth Edison Company

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1. Overview

As part of Navigant’s evaluation of Commonwealth Edison Company’s (ComEd) energy efficiency and demand response programs for program year four we reviewed the outputs of DSMore, an excel based tool, that calculates program level cost effectiveness for various tests, including the Utility, Ratepayer Impact Measure (RIM), Participant, Total Resource Cost (TRC) and Societal tests. The focus of this review is on the basis and reasonableness of the assumptions used to conduct the Illinois 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

The Illinois TRC test differs from traditional TRC tests in its requirement to include a reasonable estimate of the financial costs associated with future regulations and legislation on the emissions of greenhouse gases (GHG). This difference adds an additional benefit to investments in efficiency programs that are typically included in the Societal Test in other jurisdictions. However, the Illinois TRC test differs from the Societal test in that it only includes benefits associated with avoided GHGs and the discount rate applied to future benefits is the electric distribution companies (EDCs) Weighted Average Cost of Capital (WACC) which is typically used for in TRC calculations.

1.1 IL TRC Equation

The equation used to calculate the Illinois TRC is presented below:

Equation 1 – Illinois TRC

$$BCR_{ILTRC} = B_{ILTRC} / C_{ILTRC}$$

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

Where,

- BCR_{ILTRC}** = Benefit-cost ratio of the Illinois total resource cost test
- B_{ILTRC}** = Benefits of a Illinois program or portfolio
- C_{ILTRC}** = Costs of a Illinois program or portfolio

The benefits of the Illinois TRC are calculated using the following equation:

Equation 2 – IL TRC Benefits

$$B_{ILTRC} = \sum_{t=1}^N \frac{UAEP_t + UATD_t + UAA_t + EB_t}{(1+d)^{t-1}} + \sum_{t=1}^N \frac{UAC_{at} + PAC_{at}}{(1+d)^{t-1}}$$

The costs of the Illinois TRC are calculated using the following equation:

Equation 3 - IL TRC Costs

$$C_{ILTRC} = \sum_{t=1}^N \frac{PRC_t + PIC_t + PEAM_t + PCN_t + UIC_t}{(1+d)^{t-1}}$$

Where benefits are defined as:

- UAEP_t = Utility avoided electric production costs in year t
- UATD_t = Utility avoided transmission and distribution costs in year t
- UAA_t = Utility avoided ancillary costs in year t
- EB_t = Environmental Benefits in year t
- UAC_{at} = Utility avoided supply costs for the alternate fuel in year t
- PAC_{at} = Participant avoided costs in year t for alternate fuel devices

And costs are defined as:

- PRC_t = Program Administrator program costs in year t
- PIC_t = Program Implementation costs in year t
- PEAM_t = Program Evaluation, Measurement & Verification (EM&V), Advertising and Miscellaneous costs in year t
- PCN = Net Participant costs
- UIC_t = Utility increased supply costs in year t

1.2 TRC Data Requirements

The data points needed to conduct the Illinois TRC test are provided in Table 1 below and are divided into generic and program specific categories. The program specific data points are further subdivided into those that are provided by ComEd versus those that are a result of the Navigant’s evaluation activities.

Table 1 Data points needed to conduct TRC

Category	Data Point	Source
Generic	<ul style="list-style-type: none"> • Avoided energy costs (\$/kWh) • Avoided capacity costs (\$/kW) • Discount Rate • Line Losses • Escalation Rates • CO2 costs 	ComEd
Program Specific	<ul style="list-style-type: none"> • Participants • Verified Ex-Ante Energy Savings (kWh) • Verified Ex-Ante Capacity Savings (kW) • Realization Rate • Net to Gross Ratio 	Navigant
	<ul style="list-style-type: none"> • Measure life • Implementation Costs • Utility Admin Costs • Utility Incentive Costs • Participant Costs 	ComEd

Source: Navigant Research

This document provides a summary of the results at the portfolio and program level, the program specific inputs, a description of each of the data points provided by ComEd, the basis of their determination and their reasonableness.

2. Summary of Results & Generic Data Points

2.1 Present Value Summary of Portfolio Benefits and Costs

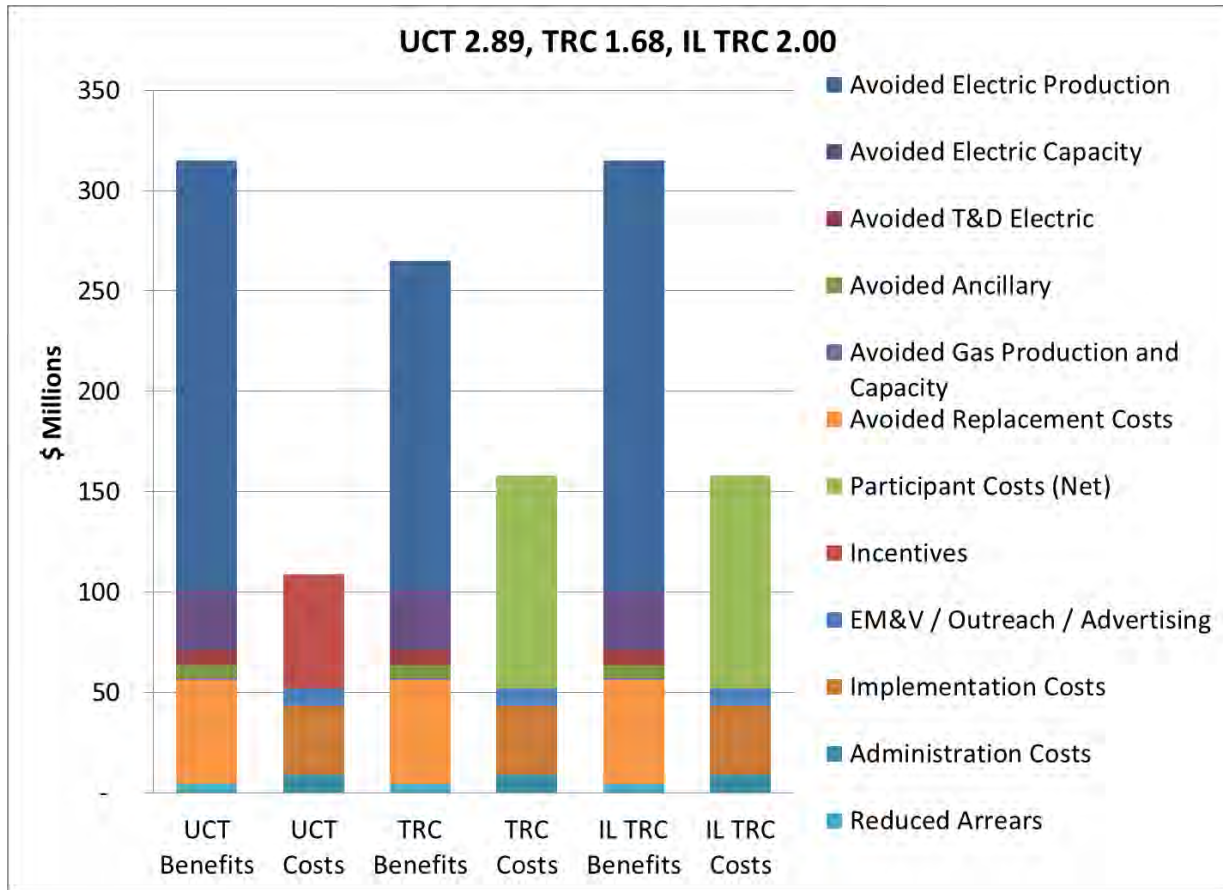
A summary of the portfolio level results, separated by benefits and cost components, is presented in Table 2 and Figure 1 below.

Table 2 – Summary of Portfolio Level Costs and Benefits (\$ in 000's)

	UCT Test		TRC Test		IL TRC Test	
	UCT Benefits	UCT Costs	TRC Benefits	TRC Costs	IL TRC Benefits	IL TRC Costs
Avoided Electric Production	214,545		164,534		214,545	
Avoided Electric Capacity	29,406		29,406		29,406	
Avoided Gas Production	792		792		792	
Avoided Gas Capacity	34		34		34	
Avoided T&D Electric	7,878		7,878		7,878	
Avoided Ancillary	6,468		6,468		6,468	
Reduced Arrears	4,395		4,395		4,395	
NPV of Avoided Replacement Costs	51,691		51,691		51,691	
Administration Costs		8,844		8,844		8,844
Implementation Costs		34,576		34,576		34,576
EM&V / Outreach / Advertising		8,357		8,357		8,357
Incentives		57,135		-		-
Net Participant Costs		-		106,145		106,145
Present Value Totals	315,210	108,912	265,199	157,922	315,210	157,922
Ratio	2.89		1.68		2.00	

Source: Navigant Research

Figure 1 – Summary of Portfolio Level Benefits and Costs



Source: Navigant Research

As shown in Figure 1, the majority of the benefits in the UCT and TRC tests are derived from avoided electric production and capacity costs, followed by avoided ancillary costs and finally avoided T&D costs. For the comparison to the standard TRC test shown above, an adder included in the value of avoided electric production after Year 3 to account for CO₂ impacts has been removed.

On the cost side, net participant costs represent the largest component followed by implementation, EM&V / outreach / advertising and administration costs in the IL TRC test.

2.2 Generic Data Points

Table 3 shows the typical values for the generic data points used in the IL TRC calculation and is followed by a description of what each of the components used in the TRC calculation represents.

Table 3 - Summary of Generic Data Points Used for TRC

Data Point	Value
Avoided Electric Production (\$/MWh)	\$56.89
Avoided Electric Capacity (\$/kW)	\$6.18
Avoided T&D (\$/kW)	\$9.55
Avoided Ancillary (\$/kW)	\$0.5157
Discount Rate (Utility WACC %)	7.54%
Line Losses (%)	9.08%
CO ₂ Benefits (\$/MWh)	\$11.27

Source: Navigant Research

2.3 Avoided Electric Production costs (\$/MWh)

Avoided electric production costs are those associated with purchasing energy from PJM. As per ComEd, avoided energy costs are based on NYMEX “ATC” for NI-Hub for the first 3 years. Future years are estimated and include the environmental benefits deriving from the expected impacts of CO₂.² ComEd does not typically use a single value for avoided electric production costs. The DSMore model calculates electric production costs under a wide variety of scenarios. The value included above is a weighted average of the probability of each scenario occurring.

2.4 Avoided Electric Capacity costs (\$/kW)

Avoided electric capacity costs are those associated with the construction of addition electricity generation facilities to meet peak demand. Incremental reductions in the amount of electricity demand during peak hours can delay or eliminate the need to build additional generation. ComEd is a participant in the Reliability Pricing Model (“RPM”), which is PJM’s forward capacity market. The DSMore model uses actual RPM clearing prices for avoided demand costs through the 2013 program year (PY6). This is a reasonable approach for valuing avoided electric capacity.

2.5 Avoided T&D Electric (\$/kW)

Avoided transmission and distribution (T&D) costs is a benefit associated with not needing to build transmission and distribution infrastructure to meet demand at peak times.

2.6 Avoided Ancillary (\$/kW)

Avoided Ancillary is a benefit associated with avoided costs attributable to the Open Access Transmission Tariff (OATT) that EDCs participating in the PJM market are required to pay based on demand.

² The primary environmental benefit that could be included in the Illinois TRC test is the value of avoided CO₂ emissions. For avoided costs in the PY4 analysis, years beyond NYMEX’s view of the NI-Hub use the Annual Energy Outlook 2012, \$15/tonne carbon scenario to incorporate CO₂ impacts in the price estimates. This is a difference from the TRC analysis performed in prior years when the CO₂ adder was a singular impact fixed across time. Adding expected CO₂ impacts to the price curve allows it to escalate similarly with the underlying electric pricing.

2.7 Admin Costs

These are ComEd's internal staff costs for administering these programs.

2.8 Implementation Costs

These are the costs associated with the implementation of the programs, typically paid to a third party to deliver the program.

2.9 EM&V / Outreach / Advertising

These are costs associated with evaluating the ComEd portfolio, outreach activities as well as advertising such as general energy efficiency promotion and its associated environmental benefits.

2.10 Incentives

The incentives are paid either to program participants and are shown above, but not included in the calculation of costs in the TRC test.

2.11 Net Participant Costs

Participant costs are the costs that participants pay as a result of participating in an energy efficiency program. They are calculated from the perspective of "what would the participant have paid in absence of the program". The gross participant costs are multiplied by the net-to-gross (NTG) ratio to determine the net participant costs which is the amount that is used in the calculation of the TRC test.

2.12 Discount Rate

Not included in Table 2 above, the discount rate is an important determinant of overall cost effectiveness. The avoided electric production, capacity T&D, and ancillary benefits accrue over the life of the measures included in each program. These benefits are discounted to determine the present value of the cumulative benefits.

The discount rate used of 7.54% reflects ComEd's weighted average cost of capital (WACC) and is appropriate rate to use for the Total Resource Cost (TRC) Test or the Rate Payer Impact Measure (RIM) Test.

The discount rate for the Societal Test is typically lower than the rate used in the TRC test. The Societal test is like the TRC except that it adds additional non-traditional benefits, like avoided environmental benefits, and the discount rate used is a societal discount rate, which is typically lower than a utility WACC. The same discount rate of 7.54% was utilized in the Societal test in this instance, which may represent a low valuation of accrued and benefits over the life of the measures included in each program.

2.13 Line Losses

Also not included in Table 2, line losses are important to incorporate in the calculation of total benefits. The energy and demand savings included in the evaluations are estimated at the customer or meter level. The savings that accrue to ComEd rate payers are those at the generator level and therefore the estimated savings are increased by the line losses within ComEd's transmission and distribution network.



The line losses of 9.08% are based on ComEd's internal analysis and were included in the three year plan filed with and approved by the commission. These line losses are in the higher end of the range that Navigant has seen, but are reasonable.

3. Program Specific Data

3.1 Present Value Summary of Program Benefits and Costs

Table 4 - Summary of Program Level Benefits and Costs (\$ in 000's)

Program	Benefits					Costs					IL TRC		
	Avoided Electric Production	Avoided Electric Capacity	Other	Avoided T&D	Avoided Ancillary	Admin Costs	Implementation Costs	EM&V/ Outreach/ Advertise	Incentives ³	Participant Costs (Net)	IL TRC Benefits	IL TRC Costs	IL TRC Test
Residential Lighting	42,980	4,290	50,778†	1,819	1,827	140	2,494	477	15,769	18,517	101,695	21,628	4.70
Fridge & Freezer Recycle	19,012	3,014	-	739	593	104	4,312	1,854	2,039	-	23,357	6,270	3.72
Clothes Washer Rebates	896	125	5,222*	28	24	35	298	129	1,610	1,455	6,294	1,918	3.28
Multi-Family	1,566	126	914†	39	30	88	209	36	1,266	329	2,676	662	4.04
Single Family	140	10	-	2	2	88	190	64	123	112	154	453	0.34
Elementary Ed	126	12	-	3	2	28	76	1	22	-	143	105	1.36
CACES	552	563	-	169	20	35	1,038	23	-	629	1,304	1,724	0.76
Home Energy Report	2,186	130	-	201	95	140	2,446	171	-	-	2,612	2,756	0.95
Complete System Replacement	262	311	-	62	23	115	125	38	832	317	658	595	1.11
Business Prescriptive	89,570	14,149	-	3,112	2,520	618	7,065	4,247	24,442	72,347	109,351	84,277	1.30
Business Custom	8,987	956	-	215	171	560	150	330	2,612	7,941	10,329	8,981	1.15
Midstream Lighting	5,957	664	-	311	206	88	546	98	2,126	720	7,139	1,452	4.92
Retro-Commissioning	3,799	55	-	17	11	88	1,654	220	2,877	632	3,882	2,594	1.50
Small Business	3,027	612	-	140	111	227	893	274	1,236	558	3,890	1,952	1.99
C&I New Construction	3,976	741	-	163	132	88	706	78	1,702	1,136	5,012	2,008	2.50
Data Centers	676	40	-	9	7	88	152	49	-	166	732	454	1.61
Compressed Air	1,339	171	-	36	30	88	657	52	480	1,285	1,576	2,082	0.76
Portfolio, Carryover & RLD 3 rd Party	29,494	3,436	-	812	663	6,230	11,563	216	-	-	34,406	18,009	1.91
Total	214,545	29,405	56,914	7,877	6,467	8,848	34,574	8,357	57,135	106,144	315,208	157,923	2.00
ComEd Summary	214,545	29,405	56,914	7,877	6,467	8,848	34,574	8,357	57,135	106,144	315,208	157,923	2.00
Delta	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: Navigant Research; * - Avoided Gas production, capacity, and water arrears; † NPV of replacement costs

³ Incentives are shown in this table but are treated as transfer payments and do not impact calculation of TRC costs.

Of note, when comparing the sum of the program specific values and the summary file that ComEd provided, the summary file was in line with the program specific calculations performed in DSMore.

3.2 Discrepancies between Evaluated and DSMore Ex-Post Net Energy Savings

In comparing the first year ex-post net energy savings that Navigant estimated and the implied first year energy savings used in DSMore, Navigant compared the values as listed in Table 5 below. This review found all of the savings values used in DSMore to be in agreement with Navigant estimates.

Table 5 - Navigant Evaluated vs. DSMore Implied Ex-Post Net Savings (MWh)

Program	Navigant Evaluated Ex-Post Net Savings	DSMore Ex-Post Net Savings	Difference	% Change
Lighting Discounts	319,243	319,243	-	0.0%
Home Energy Report	66,176	66,176	-	0.0%
Fridge Freezer Recycle Rewards	72,302	72,302	-	0.0%
Multi-Family Home Performance	9,456	9,456	-	0.0%
Single Family Home Performance	468	468	-	0.0%
Clothes Washer Rebates	2,511	2,511	-	0.0%
CACES	2,571	2,571	-	0.0%
Elementary Education	479	479	-	0.0%
Complete System Replacement	377	377	-	0.0%
Business Prescriptive	234,120	234,120	-	0.0%
Business Custom	23,892	23,892	-	0.0%
Mid-stream C&I Lighting	63,358	63,358	-	0.0%
C&I Retro-Commissioning	25,021	25,021	-	0.0%
C&I New Construction	10,400	10,400	-	0.0%
Compressed Air	2,997	2,997	-	0.0%
Small Business	9,009	9,009	-	0.0%
Data Centers	1,840	1,840	-	0.0%
C&R IP Thermostats	34	34	-	0.0%
Carryover	99,888	99,888	-	0.0%
ComEd PY4 Portfolio	944,142	944,142	-	0.0%

Source: Navigant Research

3.3 Program Specific Data Review

Amongst the Program Specific data that were used in TRC calculation, several were based on ComEd's internal tracking system of its conservation related expenditures. These include implementation, utility admin and utility incentive costs. Implementation and incentives costs are tracked by program, where utility admin costs were allocated to each program based on a survey of ComEd's energy efficiency staff. This approach seems reasonable and we therefore see no reason to doubt that these costs are accurate and reasonable.

The remaining data points that were provided by ComEd in the TRC evaluation were the Measure Life and Incremental Costs. The Measure Life determines how long the energy and demand savings from any one measure will last. The Incremental costs are the costs associated with participating in the program,

before accounting for any incentives. In most cases, these costs are the difference between the more energy efficient measure purchased due to participation in the energy efficiency program and the baseline measure costs, which is what the participant would presumably have bought in absence of the program. In some instances, the “baseline” measure is to not install any measure, such as for attic insulation. In these instances, the incremental cost is the full cost of the measure. In rebate programs, participants generally pay a portion of the incremental costs in contrast with direct install programs where the utility generally pays most or all of the incremental costs. In some cases, like refrigerator retirement programs, there are no participant incremental costs. In all these cases, the participant incremental costs should be included in the TRC calculation if nonzero.

The rest of this document provides the program specific values used to calculate the program specific TRC and assess the reasonableness of the data points determined by ComEd that were used in DSMore to calculate cost effectiveness.

3.4 Residential Lighting Program

Table 6 - TRC Components for Residential Lighting Program (\$ in 000's)

Item	Value
Measure Life	2.2 – 6.8years
Ex-Post Gross Savings (MWh)	533,162
Ex-Post Gross Savings (kW)	62,676
Ex-Post Net Savings (MWh)	319,243
Ex-Post Net Savings (kW)	37,529
Avoided Electric Production	\$ 42,980
Avoided Electric Capacity	\$ 4,290
Avoided T&D Electric	\$ 1,819
Avoided Ancillary	\$ 1,827
NPV of Replacement Costs	\$ 50,778
Administration Costs	\$ 140
Implementation Costs	\$ 2,494
EM&V / Outreach / Advertising	\$ 477
Utility Incentive Costs	\$ 15,769
Gross Participant Costs	\$ 30,912
Net Participant Costs	\$ 18,517
Total TRC Benefits	\$ 101,695
Total TRC Costs	\$ 21,628
TRC Test	4.70

Source: Navigant Research

3.4.1 Measure Life

A range of effective useful lives were used for this program based on the number of standard versus specialty CFLs sold and the proportion that ended up in residential versus commercial sockets. The later matters to the extent that bulbs installed in residential sockets have a lower hours of use (HOU) on average, and therefore have a longer effective useful life (EUL). The EUL used for each permutation agrees with the values provided in the Illinois Technical Reference Manual (IL TRM) and is appropriate for this analysis.

3.4.2 Participant/Incremental Costs

Participant costs of \$2.47 per bulb were used for bulbs ending up in residential sockets and \$2.00 per bulb was used for those ending up in commercial sockets. The former represents a weighted average of the pre-incentive cost of standard and specialty bulbs included in this program. The latter represents the implied progressive of incremental costs stated in the ILTRM. Both of these approaches and the resulting values are reasonable. Navigant notes that based on the mix of standard and specialty bulbs incented through the program, the incremental cost utilized for residential bulbs is somewhat higher than what is implied by the IL TRM. Therefore, the participant costs used in the TRC calculations could be conservative.

3.4.3 Load Shape

For the Residential Lighting Program, approximately 5% of bulbs were found to have been installed in non-residential locations. Therefore, a mix of residential and small commercial load shapes were used for this program in proportion to the estimated number of bulbs that ended up in each market. The proportional use of these load curves accurately accounts for the different savings amounts and avoided costs that can be expected from these bulbs. The methodology used is appropriate given the cross-cutting sales from this program.

3.4.4 Incentives

Incentives in this program were paid primarily to the retailers on bulbs sold and additionally there were a small amount of coupons made available to end consumers. The incentives offset a portion of the incremental costs.

3.5 Fridge Freezer Recycle Rewards Program

Table 7 - IL TRC Components for Fridge Freezer Recycle Rewards (\$ in 000's)

Item	Value
Measure Life	8
Ex-Post Gross Savings (MWh)	97,039
Ex-Post Gross Savings (kW)	14,800
Ex-Post Net Savings (MWh)	72,302
Ex-Post Net Savings (kW)	11,000
Avoided Electric Production	\$ 19,012
Avoided Electric Capacity	\$ 3,014
Avoided T&D Electric	\$ 739
Avoided Ancillary	\$ 593
Administration Costs	\$ 104
Implementation Costs	\$ 4,312
EM&V / Outreach / Advertising	\$ 1,854
Utility Incentive Costs	\$ 2,039
Gross Participant Costs	\$ 0
Net Participant Costs	\$ 0
Total IL TRC Benefits	\$ 23,357
Total IL TRC Costs	\$ 6,270
IL TRC Test	3.72

Source: Navigant Research

3.5.1 Measure Life

A measure life of eight years was used for this program, which is consistent with a 2010 analysis conducted by the Vermont Energy Investment Corporation (VEIC) for the Northeastern Energy Efficiency Partnerships (NEEP), but is longer than the five years included in the California Public Utility Commission’s (CPUC) Database for Energy Efficiency Resources (DEER). Thus, the measure life of 8 years falls within the range of reasonable input values. However, given the longer history of refrigerator retirement programs in California, the VEIC measure life is more appropriate for Illinois.

3.5.2 Participant/Incremental Costs

Participants do not bear any costs to participate in this program.

3.5.3 Load Shape

The residential load shape that was used for this program is appropriate for the programs target market, residential appliance retirement.

3.5.4 Incentives

Incentives were paid to residential home owners who allowed ComEd to pick up and retire their old appliances.

3.6 Clothes Washer Rebate Program

Table 8 - IL TRC Components for Clothes Washer Rebate Program (\$ in 000's)

Item	Value
Measure Life	11
Ex-Post Gross Savings (MWh)	3,704
Ex-Post Gross Savings (kW)	477
Ex-Post Net Savings (MWh)	2,511
Ex-Post Net Savings (kW)	323
Avoided Electric Production	896
Avoided Electric Capacity	125
Avoided T&D Electric	28
Avoided Ancillary	24
Administration Costs	35
Implementation Costs	298
EM&V / Outreach / Advertising	129
Utility Incentive Costs	1,610
Gross Participant Costs	2,146
Net Participant Costs	1,455
Total IL TRC Benefits	1,899 + 4,395 in reduced arrears
Total IL TRC Costs	1,918
IL TRC Test	3.28

Source: Navigant Research

3.6.1 Measure Life

The California Public Utility Commission's Database for Energy Efficiency Resources (DEER) lists the useful life at eleven years for an energy efficient clothes washer.⁴ Therefore, the measure life used is the DSMore calculation is reasonable.

3.6.2 Participant/Incremental Costs

Participants' incremental costs is \$100 for participating in this program.

3.6.3 Load Shape

A residential load shape was used for this program and is therefore appropriate for the target market of this program.

3.6.4 Incentives

Incentives are provided to participants in the form of rebates that reduce the incremental cost for installing an energy efficient clothes washer.

3.6.5 Other Benefits

The Clothes Washer Rebate Program was the only ComEd program to claim benefits from gas savings as well as reduced customer water usage (claimed in the form of reduced ratepayer arrears). The savings amounts of 7.92 CCF for gas and \$33.47 in per participant water savings are taken from the ComEd 3-year filing plan.

⁴ DEER database available here:

http://www.deeresources.com/index.php?option=com_content&view=article&id=65&Itemid=57

3.7 Joint Residential Multi-family All Electric

Table 9 - IL TRC Components for Residential Multi-Family Joint Program (\$ in 000's)

Item	Value
Measure Life	6-10
Ex-Post Gross Savings (MWh)	11,446
Ex-Post Gross Savings (kW)	1,142
Ex-Post Net Savings (MWh)	9,456
Ex-Post Net Savings (kW)	937
Avoided Electric Production	\$ 1,566
Avoided Electric Capacity	\$ 126
Avoided T&D Electric	\$ 39
Avoided Ancillary	\$ 30
NPV of Replacement Costs	\$ 914
Administration Costs	\$ 88
Implementation Costs	\$ 209
EM&V / Outreach / Advertising	\$ 36
Utility Incentive Costs	\$ 1,266
Gross Participant Costs	\$ 396
Net Participant Costs	\$ 329
Total IL TRC Benefits	\$ 2,676
Total IL TRC Costs	\$ 662
IL TRC Test	4.04

Source: Navigant Research

3.7.1 Measure Life

A measure life of six years was used for the standard CFLs installed through this program, nine years for aerators, and 10 years for showerheads. Each of these assumptions is consistent with the expected measure lives provided in the IL TRM. Additionally, the California Public Utility Commission's Database for Energy Efficiency Resources (DEER) lists the useful life as ten years for aerators and showerheads and four to eight years for CFLs depending on the manufacturers rated life.⁵ As such, the measure lives utilized for each measure are reasonable and fall within the range of lifetimes used for other cost effectiveness calculations.

3.7.2 Participant/Incremental Costs

This program is a direct install program where participants do not bear any costs to participate, however the appropriate, program-specific incremental costs are included as part of the program implementation/participation costs paid for by the utility.

3.7.3 Load Shape

A residential multi-family load shape was used for this program and is therefore appropriate.

3.7.4 Incentives

Incentives were not paid to participants but were provided in the form of measures installed. In terms of the TRC calculation, by including these costs as implementation costs, 100% of the measure cost is

⁵ DEER database available here:

http://www.deeresources.com/index.php?option=com_content&view=article&id=65&Itemid=57

included as a cost in the TRC calculation. This is appropriate because in absence of the program these measures would not have been installed and therefore the full cost of the measure should be included.

3.8 Single Family Home Performance

This program was a direct install program and included an energy audit of participant’s homes. Measures installed included CFLs, faucet aerators, hot water pipe insulation, low flow showerheads, water heater turndown and an energy survey.

Table 10 - IL TRC Components for Single Family Joint Program (\$ in 000's)

Item	Value
Measure Life	9
Ex-Post Gross Savings (MWh)	574
Ex-Post Gross Savings (kW)	40
Ex-Post Net Savings (MWh)	468
Ex-Post Net Savings (kW)	32
Avoided Electric Production	\$ 140
Avoided Electric Capacity	\$ 10
Avoided T&D Electric	\$ 2
Avoided Ancillary	\$ 2
Administration Costs	\$ 88
Implementation Costs	\$ 190
EM&V / Outreach / Advertising	\$ 64
Utility Incentive Costs	\$ 123
Gross Participant Costs	\$ 137
Net Participant Costs	\$ 112
Total IL TRC Benefits	\$ 154
Total IL TRC Costs	\$ 453
IL TRC Test	0.34

Source: Navigant Research

3.8.1 Measure Life

A measure life of nine years was used for this program, which installed faucet and shower aerators, pipe insulation, water heater turndown as well as CFLs. The California Public Utility Commission’s Database for Energy Efficiency Resources (DEER) lists the useful life at ten years for aerators and four to eight years for CFLs depending on the manufacturers rated life, and eleven to thirteen years for pipe insulation.⁶ Ideally, a weighted average measure life would be calculated based on the electricity savings generated by each measure type installed through the program. However, the utilized measure life of nine years is reasonable given the range of measures lives for the installed measures.

3.8.2 Participant/Incremental Costs

Participant costs used in DSMore are \$126.99 per participant. This represents ComEd’s portion (25%) of average participant cost incurred. Participant costs include the required participant co-payment, and represent a cost that they would not have incurred in absence of the program.

⁶ DEER database available here:

http://www.deeresources.com/index.php?option=com_content&view=article&id=65&Itemid=57

3.8.3 Load Shape

Residential single family load shapes were used to evaluate cost effectiveness and are appropriate given the target market for this program.

3.8.4 Incentives

Incentives were not paid to participants but were provided in the form of measures installed and the remaining cost of the energy audit. In terms of the TRC calculation, by including these costs as implementation costs, 100% of the measure cost is included as a cost in the TRC calculation. This is appropriate because in absence of the program these measures would not have been installed and therefore the full cost of the measure should be included.

3.9 Elementary Education Program

The Elementary Energy Education (EEE) program is jointly offered by Nicor Gas and Commonwealth Edison (ComEd) who engaged National Energy Foundation (NEF) to implement the program. The program targeted 5th grade students in public and large private schools that are customers of Nicor Gas or jointly Nicor Gas and ComEd.

Table 11 – IL TRC Components for Elementary Education Program (\$ in 000's)

Item	Value
Measure Life	8.25 years
Ex-Post Gross Savings (MWh)	634
Ex-Post Gross Savings (kW)	57
Ex-Post Net Savings (MWh)	479
Ex-Post Net Savings (kW)	45
Avoided Electric Production	\$ 126
Avoided Electric Capacity	\$ 12
Avoided T&D Electric	\$ 3
Avoided Ancillary	\$ 2
Administration Costs	\$ 28
Implementation Costs	\$ 76
EM&V / Outreach / Advertising	\$ 1
Utility Incentive Costs	\$ 22
Gross Participant Costs	\$ 0
Net Participant Costs	\$ 0
Total IL TRC Benefits	\$ 143
Total IL TRC Costs	\$ 105
IL TRC Test	1.36

Source: Navigant Research

3.9.1 Measure Life

The measure life used for savings included in this program was 8.25 years. This measure life is a simple average of the measures included in the program. The California Public Utility Commission's Database for Energy Efficiency Resources (DEER) lists the useful life at ten years for aerators, sixteen years for LED nightlights, and four to eight years for CFLs depending on the manufacturers rated life. Thus, the measure life of 8.25 years used for the program is appropriate. However, using a weighted average

measure life based on the proportional savings from each measure would more accurately capture the life of savings from measures included in this program.

3.9.2 Participant/Incremental Costs

Participants do not bear any costs to participate in this program.

3.9.3 Load Shape

Residential single family load shapes were used to evaluate cost effectiveness and are appropriate given the target market for this program.

3.9.4 Incentives

There are no incentives paid directly to participants in this program. A small incentive of \$100 is paid to each class to encourage the return of home report cards. These incentives have a minimal impact on the UCT test, but are not included in the Illinois TRC test.

3.10 The Central Air Conditioning Efficiency Services (CACES)

The Central Air Conditioning Efficiency Services (CACES) program consists of two distinct programs serving different markets through a common marketing and delivery infrastructure. The Diagnostics and Tune-Up program targets improved efficiency for existing residential air conditioning equipment. The Quality Installation program addresses high-efficiency equipment installations for new and replacement air conditioning equipment, including additional incentives for high SEER units.

Table 12 - IL TRC Components for CACES Program (\$ in 000's)

Item	Value
Measure Life	5
Ex-Post Gross Savings (MWh)	2,571
Ex-Post Gross Savings (kW)	3,540
Ex-Post Net Savings (MWh)	2,571
Ex-Post Net Savings (kW)	3,540
Avoided Electric Production	\$ 552
Avoided Electric Capacity	\$ 563
Avoided T&D Electric	\$ 169
Avoided Ancillary	\$ 20
Administration Costs	\$ 35
Implementation Costs	\$ 1,038
EM&V / Outreach / Advertising	\$ 23
Utility Incentive Costs	\$ 0
Gross Participant Costs	\$ 629
Net Participant Costs	\$ 629
Total IL TRC Benefits	\$ 1,304
Total IL TRC Costs	\$ 1,724
IL TRC Test	0.76

Source: Navigant Research

3.10.1 Measure Life

Measure life was five years for the entirety of the program. For the diagnostics and tune-up portion of the program, five years is within the range of what Navigant has seen for similar programs in other

jurisdictions. For the Quality Installation portion of the program, the CPUC DEER database lists a EUL of 15 years. Since the CACES Program performed nearly ten times as many diagnostics and tune-ups as compared to quality installations, a measure life of 5 years is a reasonable, though conservative, measure life for the program.

3.10.2 Participant/Incremental Costs

There are no participant costs included in DSMore for this program. The participant costs associated with this program are those incurred by the contractor for the purchase of diagnostic and Service Assistant equipment needed to conduct the diagnosis and tune-up of air conditioning equipment or the equipment required to conduct the quality installations. There was a total of \$629,000 in participant costs. These costs should be included in the program level TRC, however their relative cost is likely to be small and not expected to make a material difference on the TRC analysis.

This program shared the same installation team as the Diagnostics and Tune-Up Program. The equipment costs that were paid for by the installers in order to conduct the installations to the required specifications, should be included in the program level TRC, to the extent that the same equipment was used to conduct both programs, these costs should be divided amongst them.

3.10.3 Load Shape

Residential single family load shapes were used to evaluate cost effectiveness and are appropriate given the target market for this program.

3.10.4 Incentives

The incentives in this program are provided to participating HVAC contractors due to costs associated with using the diagnostic tool and the extra time required to adhere to the protocols needed to conduct the analysis.

3.11 Home Energy Report

Table 13 - IL TRC Components for Home Energy Report (\$ in 000's)

Item	Value
Measure Life	1
Ex-Post Gross Savings (MWh)	66,176
Ex-Post Gross Savings (kW)	0
Ex-Post Net Savings (MWh)	66,176
Ex-Post Net Savings (kW)	0
Avoided Electric Production	\$ 2,186
Avoided Electric Capacity	\$ 130
Avoided T&D Electric	\$ 201
Avoided Ancillary	\$ 95
Administration Costs	\$ 140
Implementation Costs	\$ 2,446
EM&V / Outreach / Advertising	\$ 171
Utility Incentive Costs	\$ 0
Gross Participant Costs	\$ 0
Net Participant Costs	\$ 0
Total IL TRC Benefits	\$ 2,612
Total IL TRC Costs	\$ 2,756
IL TRC Test	0.95

Source: Navigant Research

3.11.1 Measure Life

A measure life of one year is used for this program, which is appropriate given that is an informational and behavior based program. A persistence analysis may show that savings would continue even were the reports to cease, implying a measure life greater than 1 year. However, in the absence of research showing this finding, a 1 year measure life is reasonable.

3.11.2 Participant/Incremental Costs

These costs are included as zero in the program DSMore. However, it is unknown if participants made any investments in energy efficient devices to help them reduce energy use as a result of the information they received due to the program. The costs associated with any such investments would ideally be included in the TRC test for this program. However, gathering this information from participants would likely be logistically difficult and cost prohibitive.

3.11.3 Load Shape

The residential load shape used for this program's evaluation is appropriate given its target market.

3.11.4 Incentives

There are no incentives paid directly to participants in this program.

3.12 Complete System Replacement

The Complete System Replacement (CSR) program offers education and cash incentives to ComEd's, Nicor Gas', North Shore Gas', and Peoples Gas' residential customers to encourage customer purchases of higher efficiency equipment in conjunction with the Home Energy Efficiency Rebate (HEER) Program

and North Shore Gas and Peoples Gas’ Residential Prescriptive Rebate (RPR) Program – this is program that is jointly implemented by the utilities.

Table 14 - TRC Components for Complete System Replacement Program (\$ in 000’s)

Item	Value
Measure Life	18
Ex-Post Gross Savings (MWh)	638
Ex-Post Gross Savings (kW)	850
Ex-Post Net Savings (MWh)	377
Ex-Post Net Savings (kW)	502
Avoided Electric Production	\$ 262
Avoided Electric Capacity	\$ 311
Avoided T&D Electric	\$ 62
Avoided Ancillary	\$ 23
Administration Costs	\$ 115
Implementation Costs	\$ 125
EM&V / Outreach / Advertising	\$ 38
Utility Incentive Costs	\$ 832
Gross Participant Costs	\$ 538
Net Participant Costs	\$ 317
Total IL TRC Benefits	\$ 658
Total IL TRC Costs	\$ 595
IL TRC Test	1.11

Source: Navigant Research

3.12.1 Measure Life

The California Public Utility Commission’s Database for Energy Efficiency Resources (DEER) lists the useful lives ranging from 15 years to 20 years for measures that might be installed via the CSR program, including high efficiency furnaces, high efficiency air conditioners, package and split systems, and high efficiency heat pumps. Thus, the measure life of 18 years used for the program is reasonable.

3.12.2 Participant/Incremental Costs

The DSMore calculation uses a one-time customer cost of \$262. This amount was calculated based on the TRM cost of switching from a SEER 13 system to SEER 15.2 at a value of \$119 per ton. This is a sound method for determining customer incremental cost and the result is reasonable for the TRC analysis.

3.12.3 Load Shape

The residential load shape used for this program’s evaluation is appropriate given the customer base that is targeted by the program.

3.12.4 Incentives

Incentives for the CSR program are paid directly to participants in the form of rebates to eligible customers who install systems matching program criteria.

3.13 C&I Prescriptive Program

Table 15 - IL TRC Components for C&I Prescriptive Program (\$ in 000's)

Item	Value
Measure Life	12
Ex-Post Gross Savings (MWh)	316,379
Ex-Post Gross Savings (kW)	43,177
Ex-Post Net Savings (MWh)	234,120
Ex-Post Net Savings (kW)	43,177
Avoided Electric Production	\$ 89,570
Avoided Electric Capacity	\$ 14,149
Avoided T&D Electric	\$ 3,112
Avoided Ancillary	\$ 2,520
Administration Costs	\$ 618
Implementation Costs	\$ 7,065
EM&V / Outreach / Advertising	\$ 4,247
Utility Incentive Costs	\$ 24,442
Gross Participant Costs	\$ 97,767
Net Participant Costs	\$ 72,347
Total IL TRC Benefits	\$ 109,351
Total IL TRC Costs	\$ 84,277
IL TRC Test	1.30

Source: Navigant Research

3.13.1 Measure Life

There are a variety of measures included in the C&I prescriptive program with measure lives ranging from three to eighteen years. As part of its program evaluation activities Navigant conducted an engineering review and analysis of measure savings based on project documentation, default assumptions and tracking data and found the assumptions to be reasonable. Navigant conducted a further analysis of the tracking data base and found that the weighted average measure life was similar to the 12 year measure life used by ComEd in its DSMore analysis of this program, though ComEd's value is slightly conservative.

The measure lives for individual measures were based on references including DEER, other utilities, third party reports or KEMA's experience from earlier program years. These sources are regularly used in energy efficiency program evaluation and therefore the individual measure lives are reasonable.

3.13.2 Participant/Incremental Costs

Navigant's engineering review of a sample of projects also included reviewing the Workpapers that accompanied them. These workpapers included incremental costs based on third party references, like DEER, other utilities, third party reports or KEMA's experience. Overall, these costs are reasonable.

3.13.3 Load Shape

A business load shape was used for this program and is appropriate given the broad mix of measures and target market.

3.13.4 Incentives

Incentives were paid to participants and covered 25% of the incremental participant costs.

3.14 C&I Custom Program

Table 16 - IL TRC Components for C&I Custom Program (\$ in 000's)

Item	Value
Measure Life	12
Ex-Post Gross Savings (MWh)	31,437
Ex-Post Gross Savings (kW)	2,858
Ex-Post Net Savings (MWh)	23,892
Ex-Post Net Savings (kW)	2,172
Avoided Electric Production	\$ 8,987
Avoided Electric Capacity	\$ 956
Avoided T&D Electric	\$ 215
Avoided Ancillary	\$ 171
Administration Costs	\$ 560
Implementation Costs	\$ 150
EM&V / Outreach / Advertising	\$ 330
Utility Incentive Costs	\$ 2,612
Gross Participant Costs	\$ 10,448
Net Participant Costs	\$ 7,941
Total IL TRC Benefits	\$ 10,329
Total IL TRC Costs	\$ 8,981
IL TRC Test	1.15

Source: Navigant Research

3.14.1 Measure Life

Similarly to the C&I Prescriptive program, there were a number of measures included in this program with measure lives varying from one to twenty-six years. The weighted average measure life of the savings was also similar to the 12 year measure life used by ComEd in its DSMore analysis.

Measure life data for this program was based on information provided by participants and reviewed by the program implementer, KEMA, for reasonableness. This approach is sound.

3.14.2 Participant/Incremental Costs

Incremental cost data was provided by participants as part of their application for this program. Both the efficient measure and baseline costs are requested when completing an application to this program and these costs are reviewed by the program implementer KEMA for reasonableness before being submitted. This approach is sound.

3.14.3 Load Shape

A business load shape was used for this program and is appropriate given the broad mix of measures and target market.

3.14.4 Incentives

Incentives were paid to participants and covered 25% of the incremental participant costs.

3.15 Midstream Lighting Program

Table 17 - TRC Components for Midstream Lighting Program (\$ in 000's)

Item	Value
Measure Life	3 years
Ex-Post Gross Savings (MWh)	101,230
Ex-Post Gross Savings (kW)	17,000
Ex-Post Net Savings (MWh)	63,358
Ex-Post Net Savings (kW)	10,700
Avoided Electric Production	\$ 5,957
Avoided Electric Capacity	\$ 664
Avoided T&D Electric	\$ 311
Avoided Ancillary	\$ 206
Administration Costs	\$ 88
Implementation Costs	\$ 546
EM&V / Outreach / Advertising	\$ 98
Utility Incentive Costs	\$ 2,126
Gross Participant Costs	\$ 1,151
Net Participant Costs	\$ 720
Total TRC Benefits	\$ 7,139
Total TRC Costs	\$ 1,452
TRC Test	4.92

Source: Navigant Research

3.15.1 Measure Life

The measure life of 3 years used for this program is appropriate based on the lifetime of the CFLs incented through the program and the typical hours of use for the commercial establishments into which the bulbs are to be installed. This method for determining the useful life of commercial CFLs is corroborated by DEER.

3.15.2 Participant/Incremental Costs

Participant costs of \$2.00 per bulb were used. This value is from the TRM and is appropriate for this program.

3.15.3 Load Shape

The all commercial load shape was used for this program which is appropriate given the target market for the program.

3.15.4 Incentives

Incentives in this program were paid primarily to the retailers and distributors on bulbs sold. The incentives offset a portion of the incremental costs.

3.16 C&I Retro Commissioning Program

Table 18 - IL TRC Components for C&I Retro Commissioning Program (\$ in 000's)

Item	Value
Measure Life	5
Ex-Post Gross Savings (MWh)	27,315
Ex-Post Gross Savings (kW)	384
Ex-Post Net Savings (MWh)	25,021
Ex-Post Net Savings (kW)	352
Avoided Electric Production	\$ 3,799
Avoided Electric Capacity	\$ 55
Avoided T&D Electric	\$ 17
Avoided Ancillary	\$ 11
Administration Costs	\$ 88
Implementation Costs	\$ 1,654
EM&V / Outreach / Advertising	\$ 220
Utility Incentive Costs	\$ 2,877
Gross Participant Costs	\$ 690
Net Participant Costs	\$ 632
Total IL TRC Benefits	\$ 3,882
Total IL TRC Costs	\$ 2,594
IL TRC Test	1.50

Source: Navigant Research

3.16.1 Measure Life

Guidelines published for a Retro-Commissioning program run by Pacific Gas and Electric Company in 2010 listed 3 years as the effective measure life (EUL) for the resetting of HVAC controls and 5 years for recoding HVAC controls,⁷ both of which are key components of the Retro-Commissioning Program. For the installation of controls, a measure life longer than 5 years is not uncommon. Additionally, the 5 year measure life assumed is that same as that used by the gas utility jointly implementing the Retro-Commissioning Program. Therefore, Navigant feels that the assumed 5 year measure life is appropriate.

3.16.2 Participant/Incremental Costs

Incremental measure costs were determined during the EM&V process and are reasonable. ComEd's portion of the participant costs for this jointly implemented program is based upon utility agreed allocation percentages.

3.16.3 Load Shape

The large C&I class was used for this program, which is consistent with the targeted population for the program.

3.16.4 Incentives

The incentives cover the full cost of the study and a portion of the retro-commissioning costs and are paid on behalf of the participants.

⁷ "RCx Project Submittal Guidelines." Pacific Gas and Electric Company. November 2010.

3.17 Small Business Program

Table 19 - IL TRC Components for Small Business Program (\$ in 000's)

Item	Value
Measure Life	10
Ex-Post Gross Savings (MWh)	9,483
Ex-Post Gross Savings (kW)	1,755
Ex-Post Net Savings (MWh)	9,009
Ex-Post Net Savings (kW)	1,677
Avoided Electric Production	\$ 3,027
Avoided Electric Capacity	\$ 612
Avoided T&D Electric	\$ 140
Avoided Ancillary	\$ 111
Administration Costs	\$ 227
Implementation Costs	\$ 893
EM&V / Outreach / Advertising	\$ 274
Utility Incentive Costs	\$ 1,236
Gross Participant Costs	\$ 588
Net Participant Costs	\$ 558
Total IL TRC Benefits	\$ 3,890
Total IL TRC Costs	\$ 1,952
IL TRC Test	1.99

Source: Navigant Research

3.17.1 Measure Life

Measures installed via the Small Business program typically have a measure life ranging from 1 year for items such as hot-water turn-down to 20 years for some furnace and boiler measures. Given the range of measures installed, a weighted average measure life based on savings would be appropriate, but a 10 year measure life on average is reasonable. Going forward, review of the lifetimes for the main measures in this program should be reviewed for reasonableness to determine if 10 years remains accurate.

3.17.2 Participant/Incremental Costs

Incremental measure costs were determined during the EM&V process and are reasonable. ComEd's portion of the participant costs for this jointly implemented program is based upon utility agreed allocation percentages.

3.17.3 Load Shape

The small C&I load shape was used for this cost-effectiveness analysis of this program. This is appropriate given the targeted population for the program.

3.18 C&I New Construction Program

Table 20 - IL TRC Components for C&I New Construction Program (\$ in 000's)

Item	Value
Measure Life	12
Ex-Post Gross Savings (MWh)	18,200
Ex-Post Gross Savings (kW)	2,930
Ex-Post Net Savings (MWh)	10,400
Ex-Post Net Savings (kW)	1,610
Avoided Electric Production	\$ 3,976
Avoided Electric Capacity	\$ 741
Avoided T&D Electric	\$ 163
Avoided Ancillary	\$ 132
Administration Costs	\$ 88
Implementation Costs	\$ 706
EM&V / Outreach / Advertising	\$ 78
Utility Incentive Costs	\$ 1,702
Gross Participant Costs	\$ 1,989
Net Participant Costs	\$ 1,136
Total IL TRC Benefits	\$ 5,012
Total IL TRC Costs	\$ 2,008
IL TRC Test	2.50

Source: Navigant Research

3.18.1.1 Measure Life

A measure life of 12 years was used in the DSMore analysis for this program. The program has a strong focus on lighting and HVAC improvements which both have measure lives of 12 years or longer, therefore the measure life is reasonable and somewhat conservative.

3.18.1.2 Participant/Incremental Costs

The incremental costs for this program are associated with implementing high efficiency measures in a New Construction project, including lighting and HVAC measures. Incremental costs were estimated for this program based on an industry average cost per square foot of \$0.45 provided by ICF and used in ComEd's plan. This assumption is then combined with the square footage served by the New Construction Program of 6,174,333. Given the difficulty in obtaining specific incremental costs and costs used relative to incentives, this approach seems reasonable.

3.18.1.3 Load Shape

An all business load shape was used to reflect that both large and small customers participate in this program.

3.18.1.4 Incentives

Incentives are paid directly to participants, building owners or developers to offset a portion of the incremental costs.

3.19 Data Centers

Table 21 - TRC Components for Data Centers (\$ in 000's)

Item	Value
Measure Life	12
Ex-Post Gross Savings (MWh)	4,323
Ex-Post Gross Savings (kW)	212
Ex-Post Net Savings (MWh)	1,840
Ex-Post Net Savings (kW)	133
Avoided Electric Production	\$ 676
Avoided Electric Capacity	\$ 40
Avoided T&D Electric	\$ 9
Avoided Ancillary	\$ 7
Administration Costs	\$ 88
Implementation Costs	\$ 152
EM&V / Outreach / Advertising	\$ 49
Utility Incentive Costs	\$ 0
Gross Participant Costs	\$ 389
Net Participant Costs	\$ 166
Total IL TRC Benefits	\$ 732
Total IL TRC Costs	\$ 454
IL TRC Test	1.61

Source: Navigant Research

3.19.1 Measure Life

The measure life of 12 years used for this program was calculated based on the average measure life from projects sampled as part of the PY5 evaluation. This approach is sound for determining measure life. Navigant will confirm the reasonableness of the measure life calculations during the PY5 evaluation cycle.

3.19.2 Participant/Incremental Costs

The participant cost is based on the average cost of projects implemented through the program as provided by Frontier. This approach is sound.

3.19.3 Load Shape

The large C&I load shape used for this program's evaluation, which is appropriate given the nature of the customers served by this program in PY4.

3.19.4 Incentives

The incentives are paid to participants in order to encourage the installation of efficient data center equipment.

3.20 Compressed Air Program

Table 22 - TRC Components for Compressed Air Program (\$ in 000's)

Item	Value
Measure Life	15
Ex-Post Gross Savings (MWh)	4,473
Ex-Post Gross Savings (kW)	461
Ex-Post Net Savings (MWh)	2,997
Ex-Post Net Savings (kW)	331
Avoided Electric Production	\$ 1,339
Avoided Electric Capacity	\$ 171
Avoided T&D Electric	\$ 36
Avoided Ancillary	\$ 30
Administration Costs	\$ 88
Implementation Costs	\$ 657
EM&V / Outreach / Advertising	\$ 52
Utility Incentive Costs	\$ 480
Gross Participant Costs	\$ 1,918
Net Participant Costs	\$ 1,285
Total IL TRC Benefits	\$ 1,576
Total IL TRC Costs	\$ 2,082
IL TRC Test	0.76

Source: Navigant Research

3.20.1 Measure Life

The measure life of 15 years used for this program was calculated based on the average measure life from projects sampled as part of the PY5 evaluation. This approach is sound for determining measure life. Navigant will confirm the reasonableness of the measure life calculations during the PY5 evaluation cycle.

3.20.2 Participant/Incremental Costs

The participant cost is based on the average cost of projects implemented through the program in PY5 deflated by 2% to account for assumed inflation rates between PY4 and PY5. This approach is reasonable and Navigant will confirm the reasonableness of the PY5 average cost calculations during that evaluation cycle.

3.20.3 Load Shape

The large C&I load shape is used for this program's evaluation, which is appropriate given the nature of the customers served by this program in PY4.

3.20.4 Incentives

The incentives are set at 25% of the project incremental costs and are paid to participants in order to encourage and maintain participation.