



**Total Resource Cost (TRC) Test Results:  
Jointly Implemented Programs**

**Final**

**Triennial  
Energy Efficiency Plan:  
(6/1/2011-5/31/2014)**

**Presented to:  
Commonwealth Edison  
Nicor Gas  
Peoples Gas  
North Shore Gas**

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## Appendix A: TRC Benefit Cost Results for Jointly Implemented Programs

Several of the energy efficiency programs implemented by Commonwealth Edison (ComEd), Nicor Gas, Peoples Gas, and North Shore Gas are “joint” programs such that they are designed and operated jointly by ComEd and one or more of the gas utilities for customers who are served both by ComEd (electric service) and Nicor Gas, Peoples Gas, or North Shore Gas (gas service). The intent of the joint programs is to gain efficiencies in the marketing and operations of the programs for the joint customer participants from what would occur if each utility marketed and operated its own program. For each joint program, the utilities involve a common implementation contractor. In total, there are seven jointly implemented programs. **Navigant’s analysis shows that when the jointly implemented programs are viewed in the aggregate, each program was cost-effective over the three-year period based on both the IL TRC test and the UCT.** Table A-1 lists the seven programs jointly implemented by ComEd and the gas utilities, and indicates which gas utilities jointly implemented the programs in which program years.

**Table A-1. Summary of Jointly Implemented Programs and Timing**

Program	Peoples Gas / North Shore Gas			Nicor Gas		
	EPY4 / GPY1	EPY5 / GPY2	EPY6 / GPY3	EPY4 / GPY1	EPY5 / GPY2	EPY6 / GPY3
<b>Home Energy Savings / Single Family Retrofit</b>			X	X	X	X
<b>Multi-Family Retrofit</b>	X	X	X	X	X	X
<b>Elementary Energy Education</b>				X	X	X
<b>Residential New Construction</b>				X	X	X
<b>C&amp;I Retrocommissioning</b>	X	X	X	X	X	X
<b>C&amp;I New Construction</b>				X	X	X
<b>Small Business Direct Install / Efficiency</b>	X	X	X	X	X	

*Source: Navigant researched data*

It is important to note that joint cost-effectiveness calculations are not always equal to the sum of the cost-effectiveness numbers filed separately for each participating utility. There can be several reasons for these differences, but the main difference is to avoid the double counting of savings or costs that may already be included by more than one utility. In particular, incremental costs for measures that generate both gas and electric savings, such as thermostats and envelope measures, are prone to double counting, especially when based on deemed TRM values. Though double counting is most common for incremental measures, it is also possible for other TRC calculation components, including estimated avoided costs, interactive effects, and implementation costs.

A summary of the components of the joint cost effectiveness calculations for each joint program are shown in Table A-2 for the Illinois TRC calculations and Table A-3 for the Utility Cost Test calculations. The tables include the value of each benefit and cost component for each program, when aggregated across all utilities that were involved in its joint implementation. For the IL TRC, the TRC ratio for the individual programs ranged from 1.74 for C&I Retro-Commissioning to 4.25 for C&I New Construction.



For the UCT, the results ranged from 1.36 for Home Energy Savings / Single Family Retrofit to 3.12 for C&I New Construction.

**Table A-2. Summary of Program Level Benefits, Costs (\$ in 000's) and IL TRC Test – Jointly Implemented Programs**

Program  (a)	Costs														IL Total Resource Cost (TRC) Test			
	Avoided Electric Production	Avoided Electric Capacity	Avoided Electric T&D	Avoided Ancillary	Avoided Gas Production	Avoided Gas Capacity	Other Benefits	Other Benefits	Non-Incentive Costs (Electric)	Non-Incentive Costs (Gas)	Incentive Costs (Electric)	Incentive Costs (Gas)	Net Incremental Costs (Electric)	Net Incremental Costs (Gas)	IL TRC Benefits	IL TRC Costs	IL TRC Test Net Benefits	IL TRC Test
	(b)	(c)	(d)	(e)	(f)	(g)	(h)	Description	(i)	(j)	(k)	(l)	(m)	(n)	(o) = (b+c+d+e+f+g+h)	(p) = (i+j+m+n)	(q) = (o-p)	(r) = (o/p)
Home Energy Savings / Single Family Retrofit	\$ 1,064,833	\$ 1,450,043	\$ 952,332	\$ 270,032	\$ 7,333,180	\$ 803,928	\$ 1,222,287	GHG / Environmental Benefits	\$ 1,565,878	\$ 2,495,877	\$ 996,856	\$ 3,642,295	\$ 1,815,297	\$ 1,129,156	\$ 13,096,635	\$ 7,006,208	\$ 6,090,427	<b>1.87</b>
Multifamily	\$ 6,423,217	\$ 1,035,848	\$ 567,978	\$ 926,694	\$ 83,416,090	\$ 8,983,137	\$ 10,026,867	GHG / Environmental Benefits	\$ 3,375,618	\$ 8,233,785	\$ 5,094,767	\$ 19,759,360	\$ 3,215,209	\$ 20,881,315	\$ 111,379,831	\$ 35,705,927	\$ 75,673,904	<b>3.12</b>
Elementary Energy Education	\$ 1,120,925	\$ 209,537	\$ 124,784	\$ 223,658	\$ 3,488,639	\$ 387,627	\$ 1,143,773	GHG / Environmental Benefits	\$ 1,050,991	\$ 303,896	\$ 211,617	\$ 1,787,683	\$ 171,775	\$ 1,412,064	\$ 6,698,942	\$ 2,938,726	\$ 3,760,216	<b>2.28</b>
Res New Construction	\$ 252,007	\$ 135,477	\$ 91,225	\$ 60,913	\$ 3,780,487	\$ 420,054	\$ 848,028	GHG / Environmental Benefits	\$ 93,840	\$ 793,329	\$ 46,699	\$ 1,240,200	\$ 85,548	\$ 1,975,452	\$ 5,588,191	\$ 2,948,170	\$ 2,640,021	<b>1.90</b>
C&I Retrocommissioning	\$ 14,504,074	\$ 414,186	\$ 735,731	\$ 794,319	\$ 9,263,602	\$ 1,002,355	\$ 4,925,600	GHG / Environmental Benefits	\$ 4,412,640	\$ 1,082,433	\$ 7,053,106	\$ 3,188,949	\$ 9,131,600	\$ 3,507,586	\$ 31,639,867	\$ 18,134,259	\$ 13,505,608	<b>1.74</b>
C&I New Construction	\$ 24,778,780	\$ 3,756,282	\$ 6,558,377	\$ 1,145,666	\$ 2,625,391	\$ 291,710	\$ 6,428,585	GHG / Environmental Benefits	\$ 4,728,092	\$ 278,864	\$ 6,950,253	\$ 607,593	\$ 4,771,801	\$ 936,477	\$ 45,584,792	\$ 10,715,234	\$ 34,869,558	<b>4.25</b>
Small Business Direct Install / Efficiency	\$ 29,197,433	\$ 8,665,482	\$ 5,213,139	\$ 7,346,248	\$ 9,984,955	\$ 1,965,045	\$ 12,155,921	GHG / Environmental Benefits	\$ 6,901,054	\$ 2,319,112	\$ 14,590,730	\$ 3,312,580	\$ 16,717,772	\$ 2,852,589	\$ 74,528,222	\$ 28,790,526	\$ 45,737,695	<b>2.59</b>

Note: In some instances, incremental costs for gas utilities have been altered from those utilized in the utility-specific cost-benefit calculations to prevent double counting of incremental costs when performing the joint calculations. Examples of this included thermostat measures and Elementary Energy Education kits. Additionally, for some programs including Single Family Retrofit, Multi-Family Retrofit, and Small Business Direct Install, Navigant did not have sufficient information from all utilities and all program years to ensure that costs associated with energy assessments, direct install labor and materials were treated consistently. In these cases, there is some uncertainty as to how these costs are distributed among cost categories within the joint TRC analysis.

Source: Navigant analysis

**Table A-3. Summary of Program Level Benefits, Costs (\$ in 000's) and Utility Cost Test – Jointly Implemented Programs**

Program									Costs						Utility Cost Test (UCT), All Utilities Combined			
	Avoided Electric Production	Avoided Electric Capacity	Avoided Electric T&D	Avoided Ancillary	Avoided Gas Production	Avoided Gas Capacity	Other Benefits	Other Benefits	Non-Incentive Costs (Electric)	Non-Incentive Costs (Gas)	Incentive Costs (Electric)	Incentive Costs (Gas)	Net Incremental Costs (Electric)	Net Incremental Costs (Gas)	UCT Benefits	UCT Costs	UCT Test Net Benefits	UCT Test
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	Description	(i)	(j)	(k)	(l)	(m)	(n)	(o) = (b+c+d+e+f+g)	(p) = (i+j+k+l)	(q) = (o-p)	(r) = (o/p)
Home Energy Savings / Single Family Retrofit	\$ 1,064,833	\$ 1,450,043	\$ 952,332	\$ 270,032	\$ 7,333,180	\$ 803,928	\$ 1,222,287	GHG / Environmental Benefits	\$ 1,565,878	\$ 2,495,877	\$ 996,856	\$ 3,642,295	\$ 1,815,297	\$ 1,129,156	\$ 11,874,348	\$ 8,700,905	\$ 3,173,443	<b>1.36</b>
Multifamily	\$ 6,423,217	\$ 1,035,848	\$ 567,978	\$ 926,694	\$ 83,416,090	\$ 8,983,137	\$ 10,026,867	GHG / Environmental Benefits	\$ 3,375,618	\$ 8,233,785	\$ 5,094,767	\$ 19,759,360	\$ 3,215,209	\$ 20,881,315	\$ 101,352,964	\$ 36,463,530	\$ 64,889,434	<b>2.78</b>
Elementary Energy Education	\$ 1,120,925	\$ 209,537	\$ 124,784	\$ 223,658	\$ 3,488,639	\$ 387,627	\$ 1,143,773	GHG / Environmental Benefits	\$ 1,050,991	\$ 303,896	\$ 211,617	\$ 1,787,683	\$ 171,775	\$ 1,412,064	\$ 5,555,169	\$ 3,354,187	\$ 2,200,982	<b>1.66</b>
Res New Construction	\$ 252,007	\$ 135,477	\$ 91,225	\$ 60,913	\$ 3,780,487	\$ 420,054	\$ 848,028	GHG / Environmental Benefits	\$ 93,840	\$ 793,329	\$ 46,699	\$ 1,240,200	\$ 85,548	\$ 1,975,452	\$ 4,740,163	\$ 2,174,068	\$ 2,566,095	<b>2.18</b>
C&I Retrocommissioning	\$ 14,504,074	\$ 414,186	\$ 735,731	\$ 794,319	\$ 9,263,602	\$ 1,002,355	\$ 4,925,600	GHG / Environmental Benefits	\$ 4,412,640	\$ 1,082,433	\$ 7,053,106	\$ 3,188,949	\$ 9,131,600	\$ 3,507,586	\$ 26,714,267	\$ 15,737,128	\$ 10,977,139	<b>1.70</b>
C&I New Construction	\$ 24,778,780	\$ 3,756,282	\$ 6,558,377	\$ 1,145,666	\$ 2,625,391	\$ 291,710	\$ 6,428,585	GHG / Environmental Benefits	\$ 4,728,092	\$ 278,864	\$ 6,950,253	\$ 607,593	\$ 4,771,801	\$ 936,477	\$ 39,156,206	\$ 12,564,802	\$ 26,591,404	<b>3.12</b>
Small Business Direct Install / Efficiency	\$ 29,197,433	\$ 8,665,482	\$ 5,213,139	\$ 7,346,248	\$ 9,984,955	\$ 1,965,045	\$ 12,155,921	GHG / Environmental Benefits	\$ 6,901,054	\$ 2,319,112	\$ 14,590,730	\$ 3,312,580	\$ 16,717,772	\$ 2,852,589	\$ 62,372,301	\$ 27,123,476	\$ 35,248,825	<b>2.30</b>

Note: In some instances, incremental costs for gas utilities have been altered from those utilized in the utility-specific cost-benefit calculations to prevent double counting of incremental costs when performing the joint calculations. Examples of this included thermostat measures and Elementary Energy Education kits. Additionally, for some programs including Single Family Retrofit, Multi-Family Retrofit, and Small Business Direct Install, Navigant did not have sufficient information from all utilities and all program years to ensure that costs associated with energy assessments, direct install labor and materials were treated consistently. In these cases, there is some uncertainty as to how these costs are distributed among cost categories within the joint TRC analysis.

Source: Navigant analysis



With respect to the program specific data used in TRC calculation, several were based on each utility's internal tracking and accounting systems. These include implementation, utility administration and utility incentive costs. Implementation and incentives costs are tracked by program, where each utility's admin costs were provided by the respective utility energy efficiency staff. Utility costs for implementing the programs were split between the utilities based on an agreed percentage. For this joint benefit cost analysis, the costs, while split between ComEd, Nicor Gas, Peoples Gas, and North Shore Gas, represent the total costs for implementing the program.

The remaining data points that were reviewed in compiling the joint cost effectiveness calculations are incremental costs and the value of avoided greenhouse gas (GHG) emissions. Incremental costs are the costs associated with participating in the program, before accounting for any incentives. For most of the measures included in the joint programs, the claimed savings are all gas or all electric. In these instances, there is no risk of incremental costs being double counted. However, for a handful of measures that frequently generate both electric and gas savings (e.g. programmable thermostats, envelope measures, whole building projects), Navigant reviewed the input data to ensure that any incremental costs are included only once in the joint cost-effectiveness calculations. For some programs, including Single Family Retrofit, Multi-Family Retrofit, and Small Business Direct Install, Navigant did not have sufficient information from all utilities and all program years to ensure that the costs associated with energy assessments, direct install labor and materials were treated consistently. In these cases, there is some uncertainty as to how these costs are distributed among cost categories within the joint TRC analysis. Navigant also made an effort to harmonize the value of avoided GHG emissions included in the joint program benefits at a value of approximately \$27.50 per ton of avoided CO<sub>2</sub>.