

Net Therm Savings per Participant

	25% Reduction
Peoples Gas	85.66
North Shore Gas	100.29

TRC Ratio

		25% Reduction
Peoples Gas	2014	1.29
Peoples Gas	2015	1.38
Peoples Gas	2016	1.46
North Shore Gas	2014	1.41
North Shore Gas	2015	1.50
North Shore Gas	2016	1.59

5.6.1 Air Sealing
RS-SHL-AIRS-V01-120601

			Participation	Total Incentives
Peoples Gas	2014	PY4	150	\$45,000
Peoples Gas	2015	PY5	150	\$45,000
Peoples Gas	2016	PY6	150	\$45,000
North Shore Gas	2014	PY4	25	\$7,500
North Shore Gas	2015	PY5	25	\$7,500
North Shore Gas	2016	PY6	25	\$7,500

NTG = Deemed from SAG Evaluation meeting

Radon Kit	\$12.50
Radon Testing (\$50-150 per test)	\$200
Incremental Cost per CFM Saved	\$0.70
Incentive per Participant	\$300

David Brightwell Testimony

http://www.michigan.gov/deq/0,4561,7-135-3310_4105_4196-10451--,00.html#How%20much%20does%20it%20cost%20

	Peoples Gas	North Shore	
Natural Leakage	0.60	0.60	http://www.nrel.gov/docs/fy03o
Ceiling Height (ft)	8	8	
Average Square Feet	2,186	2,623	EIA 1-story home Illinois assumption
Reduction	25%	25%	
CFM50_existing	2,973	3,568	
CFM50_new	2,230	2,676	
N_Cool	18.50	18.50	Zone 2
CDD	842	842	Chicago IL TRM
nCool	13	13	IL TRM
DUA	0.75	0.75	
LM	6.2	6.2	IL TRM
FLH Cooling	570	570	
CF	91.5%	91.5%	
N_heat	16.70	16.70	Zone 2
HDD	6,339	6,339	Chicago IL TRM
nHeat	1.92	1.92	
n_heat (system efficiency)	70%	70%	IL TRM
Therm Savings	104.46	125.4	
kWh Savings	313.63	376.35	
kW Savings	0.5035	0.6041	
Measure Life	15	15	IL TRM
Incremental Cost	\$520	\$624	Estimate

Therm Savings = (((CFM50_existing - CFM50_new)/N_heat) * 60 * 24 * HDD * 0.018) / (ηHeat * 100,000)

kWh Savings = [(((CFM50_existing - CFM50_new)/N_cool) * 60 * 24 * CDD * DUA * 0.018) / (1000 * ηCool)] * LM

kW Savings = (ΔkWh_cooling / FLH_cooling) * CF

Reduction on Air Sealing

CFM50 = ACH50/60*Volume

ACH50 = NL X 17

www.greenbuildingadvisor.com/blogs/dept/musings/blow-door-basics

Table HC10.11 Average Square Footage of Midwest Homes, by Housing Characteristics, 2009

Avg Sq Ft per Illinois Housing Unit	2,186
-------------------------------------	-------

Total Costs		Gross Savings per Participant				Net Savings per Participant			Incremental Cost per Participant
Delivery/Program Management/Marketing	Measure Life	NTG	kWh	kW	Therm	kWh	kW	Therm	
\$86,250	15	82%	314	0.50	104	257.17	0.41	85.66	\$520
\$86,250	15	82%	314	0.50	104	257.17	0.41	85.66	\$520
\$86,250	15	82%	314	0.50	104	257.17	0.41	85.66	\$520
\$14,375	15	80%	376	0.60	125	301.08	0.48	100.29	\$624
\$14,375	15	80%	376	0.60	125	301.08	0.48	100.29	\$624
\$14,375	15	80%	376	0.60	125	301.08	0.48	100.29	\$624

20to%20test

isti/33698.pdf

B/C Ratio -- Cost Tests				
TRC	Societal	RIM	Administrator	Participant
1.29	1.31	0.57	1.62	4.32
1.38	1.39	0.59	1.72	4.48
1.46	1.47	0.61	1.82	4.65
1.41	1.42	0.72	1.93	3.45
1.50	1.51	0.74	2.05	3.58
1.59	1.60	0.76	2.17	3.71

Net Present Value		
Avoided Energy & Demand Savings	Avoided Environmental Costs	Participant Bill Savings
\$212,401	\$2,002	\$292,043
\$213,536	\$1,892	\$287,711
\$213,606	\$1,787	\$283,444
\$42,248	\$390	\$46,399
\$42,445	\$368	\$45,698
\$42,435	\$348	\$45,008

nt Value			
Lost Utility Revenue	Program Delivery Costs	Participant Incentives	Incremental Cost
\$239,475	\$86,250	\$45,000	\$78,040
\$235,923	\$81,483	\$42,513	\$73,727
\$232,424	\$76,980	\$40,163	\$69,652
\$37,120	\$14,375	\$7,500	\$15,608
\$36,559	\$13,577	\$7,083	\$14,741
\$36,006	\$12,823	\$6,690	\$13,923

2014	2015	2016	2017
\$11,902	\$13,409	\$14,963	\$16,538
\$0	\$13,409	\$14,963	\$16,538
\$0	\$0	\$14,963	\$16,538
\$2,388	\$2,685	\$2,991	\$3,301
\$0	\$2,685	\$2,991	\$3,301
\$0	\$0	\$2,991	\$3,301

Avoided Energy & Demand Savings

2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
\$18,215	\$19,878	\$21,561	\$23,279	\$24,089	\$24,934	\$25,819	\$26,698	\$27,629	\$28,584	\$29,568	\$0
\$18,215	\$19,878	\$21,561	\$23,279	\$24,089	\$24,934	\$25,819	\$26,698	\$27,629	\$28,584	\$29,568	\$30,585
\$18,215	\$19,878	\$21,561	\$23,279	\$24,089	\$24,934	\$25,819	\$26,698	\$27,629	\$28,584	\$29,568	\$30,585
\$3,632	\$3,960	\$4,291	\$4,630	\$4,792	\$4,961	\$5,138	\$5,313	\$5,500	\$5,690	\$5,887	\$0
\$3,632	\$3,960	\$4,291	\$4,630	\$4,792	\$4,961	\$5,138	\$5,313	\$5,500	\$5,690	\$5,887	\$6,091
\$3,632	\$3,960	\$4,291	\$4,630	\$4,792	\$4,961	\$5,138	\$5,313	\$5,500	\$5,690	\$5,887	\$6,091

2028	2029	2030
\$193	\$0	\$0
\$193	\$193	\$0
\$193	\$193	\$193
\$38	\$0	\$0
\$38	\$38	\$0
\$38	\$38	\$38

								Particip
2014	2015	2016	2017	2018	2019	2020	2021	
\$21,571	\$22,495	\$23,458	\$24,461	\$25,508	\$26,600	\$27,739	\$28,926	
\$0	\$22,495	\$23,458	\$24,461	\$25,508	\$26,600	\$27,739	\$28,926	
\$0	\$0	\$23,458	\$24,461	\$25,508	\$26,600	\$27,739	\$28,926	
\$3,434	\$3,581	\$3,734	\$3,894	\$4,060	\$4,234	\$4,415	\$4,604	
\$0	\$3,581	\$3,734	\$3,894	\$4,060	\$4,234	\$4,415	\$4,604	
\$0	\$0	\$3,734	\$3,894	\$4,060	\$4,234	\$4,415	\$4,604	

Water and Sewer Bill Savings									
2022	2023	2024	2025	2026	2027	2028	2029	2030	
\$30,164	\$31,455	\$32,801	\$34,205	\$35,669	\$37,196	\$38,788	\$0	\$0	
\$30,164	\$31,455	\$32,801	\$34,205	\$35,669	\$37,196	\$38,788	\$40,448	\$0	
\$30,164	\$31,455	\$32,801	\$34,205	\$35,669	\$37,196	\$38,788	\$40,448	\$42,179	
\$4,802	\$5,007	\$5,221	\$5,445	\$5,678	\$5,921	\$6,174	\$0	\$0	
\$4,802	\$5,007	\$5,221	\$5,445	\$5,678	\$5,921	\$6,174	\$6,439	\$0	
\$4,802	\$5,007	\$5,221	\$5,445	\$5,678	\$5,921	\$6,174	\$6,439	\$6,714	

2014
\$17,689
\$0
\$0
\$2,747
\$0
\$0

Lost Utility Revenue

2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
\$18,446	\$19,235	\$20,058	\$20,917	\$21,812	\$22,746	\$23,719	\$24,734	\$25,793	\$26,897	\$28,048	\$29,249
\$18,446	\$19,235	\$20,058	\$20,917	\$21,812	\$22,746	\$23,719	\$24,734	\$25,793	\$26,897	\$28,048	\$29,249
\$0	\$19,235	\$20,058	\$20,917	\$21,812	\$22,746	\$23,719	\$24,734	\$25,793	\$26,897	\$28,048	\$29,249
\$2,865	\$2,987	\$3,115	\$3,248	\$3,387	\$3,532	\$3,684	\$3,841	\$4,006	\$4,177	\$4,356	\$4,542
\$2,865	\$2,987	\$3,115	\$3,248	\$3,387	\$3,532	\$3,684	\$3,841	\$4,006	\$4,177	\$4,356	\$4,542
\$0	\$2,987	\$3,115	\$3,248	\$3,387	\$3,532	\$3,684	\$3,841	\$4,006	\$4,177	\$4,356	\$4,542

2027	2028	2029	2030
\$30,500	\$31,806	\$0	\$0
\$30,500	\$31,806	\$33,167	\$0
\$30,500	\$31,806	\$33,167	\$34,587
\$4,737	\$4,939	\$0	\$0
\$4,737	\$4,939	\$5,151	\$0
\$4,737	\$4,939	\$5,151	\$5,371

Non-Energy Benefits (Gas)	1.075	
Escalation Rate	4.28%	Minnesota Division of Energy Resources

	Peoples Gas	North Shore Gas	
Utility Discount Rate	5.85%	5.88%	Integrays (7/24/13 email)
Line Losses	1.019	1.003	http://www.peoplesgasdelivery.com/con http://www.northshoregasdelivery.com/

Environmental Damage Factor		
Electric (\$/kWh)	\$0.0050	
Natural Gas (\$/therm)	\$0.0000	Included in Avoided Cost

Avoided Costs

Year			0	1	2	3
Year		2013	2014	2015	2016	2017
Avoided Electric Energy (\$/kWh)			\$0.03	\$0.03	\$0.03	\$0.04
Avoided Demand (\$/kW-year)			\$43.05	\$61.74	\$80.47	\$99.22
Avoided Gas (\$/therm)	Peoples Gas	\$0.55	\$0.62	\$0.65	\$0.67	\$0.70
Avoided Gas (\$/therm)	North Shore	\$0.58	\$0.65	\$0.67	\$0.70	\$0.73
Residential Retail Rate (\$/kWh)		\$0.0042	\$0.00	\$0.00	\$0.01	\$0.01
Residential Retail Rate (\$/therm)	Peoples Gas	\$1.22	\$1.36	\$1.42	\$1.48	\$1.55
Residential Retail Rate (\$/therm)	North Shore	\$0.96	\$1.08	\$1.13	\$1.18	\$1.23

		GHG	
		\$/Metric Ton	\$/Therm
Year	Year		
1	2014	\$13.79	\$0.08
2	2015	\$15.00	

U.S. Energy Information Administration. Annual Energy Outlook 2012.

117.1 lbs CO2 per thousand cubic feet.
http://www.eia.gov/environment/emissions/co2_vol_mass.cfm

2000 lbs = 1 ton

[npany/tariffs/info_unaccounted.pdf](#)
[company/tariffs/info_unaccounted.pdf](#)

4 2018	5 2019	6 2020	7 2021	8 2022	9 2023	10 2024	11 2025	12 2026	13 2027	14 2028
\$0.04	\$0.04	\$0.04	\$0.05	\$0.05	\$0.05	\$0.06	\$0.06	\$0.06	\$0.07	\$0.07
\$118.01	\$136.83	\$155.69	\$174.59	\$178.51	\$182.53	\$186.64	\$190.84	\$195.15	\$199.55	\$204.06
\$0.73	\$0.76	\$0.80	\$0.83	\$0.87	\$0.90	\$0.94	\$0.98	\$1.02	\$1.07	\$1.11
\$0.76	\$0.80	\$0.83	\$0.87	\$0.90	\$0.94	\$0.98	\$1.02	\$1.07	\$1.11	\$1.16
\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01
\$1.61	\$1.68	\$1.75	\$1.83	\$1.91	\$1.99	\$2.07	\$2.16	\$2.25	\$2.35	\$2.45
\$1.28	\$1.33	\$1.39	\$1.45	\$1.51	\$1.58	\$1.64	\$1.71	\$1.79	\$1.86	\$1.94

15 2029	16 2030	17 2031	18 2032	19 2033	20 2034	21 2035	22 2036	23 2037	24 2038	25 2039	26 2040
\$0.07	\$0.07	\$0.08	\$0.08	\$0.08	\$0.09	\$0.09	\$0.09	\$0.10	\$0.10	\$0.10	\$0.11
\$208.67	\$213.39	\$218.22	\$223.17	\$228.23	\$233.41	\$238.71	\$244.14	\$249.69	\$255.38	\$261.20	\$267.16
\$1.16	\$1.21	\$1.26	\$1.32	\$1.37	\$1.43	\$1.49	\$1.56	\$1.62	\$1.69	\$1.77	\$1.84
\$1.21	\$1.26	\$1.32	\$1.37	\$1.43	\$1.49	\$1.56	\$1.62	\$1.69	\$1.76	\$1.84	\$1.92
\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01
\$2.55	\$2.66	\$2.78	\$2.90	\$3.02	\$3.15	\$3.29	\$3.43	\$3.57	\$3.73	\$3.88	\$4.05
\$2.03	\$2.11	\$2.21	\$2.30	\$2.40	\$2.50	\$2.61	\$2.72	\$2.84	\$2.96	\$3.08	\$3.22

27 2041	28 2042	29 2043	30 2044	31 2045	32 2046	33 2047
\$0.11	\$0.11	\$0.11	\$0.12	\$0.12	\$0.12	\$0.13
\$273.26	\$279.51	\$285.90	\$292.45	\$299.15	\$306.01	\$313.04
\$1.92	\$2.00	\$2.09	\$2.18	\$2.27	\$2.37	\$2.47
\$2.00	\$2.09	\$2.18	\$2.27	\$2.37	\$2.47	\$2.57
\$0.01	\$0.02	\$0.02	\$0.02	\$0.02	\$0.02	\$0.02
\$4.22	\$4.41	\$4.59	\$4.79	\$5.00	\$5.21	\$5.43
\$3.35	\$3.50	\$3.65	\$3.80	\$3.97	\$4.13	\$4.31