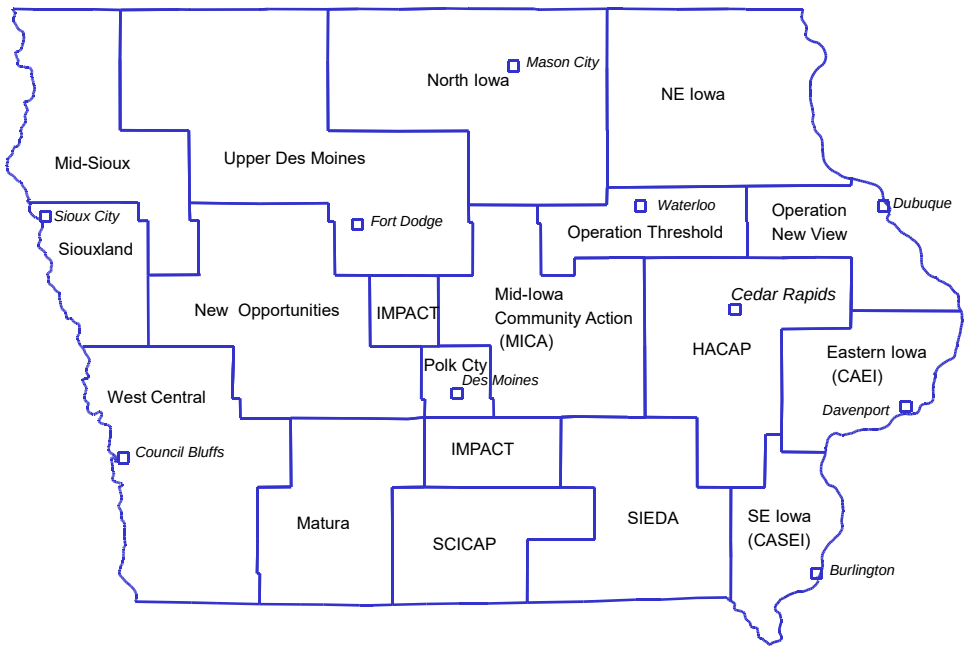
REPORT ON THE IMPACTS AND COSTS OF THE IOWA LOW-INCOME WEATHERIZATION PROGRAM -- Calendar Year 2017

September 28, 2018

Iowa Local Weatherization Agencies



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Prepared for the

Iowa Statewide Low-Income Collaborative

by

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EXECUTIVE SUMMARY

This report summarizes the state and utility low-income weatherization program activity for low-income dwellings weatherized to completion in Iowa during calendar year 2017 through the Iowa Weatherization Assistance Program. The report includes state, utility, and agency summaries of spending and impacts by measure, end-use, and fuel type. The base data consists of statewide program tracking databases of spending and measure installations maintained by the Iowa Division of Community Action Agencies. Fuel consumption histories were provided by the three co-funding utilities, including by Black Hills Energy, Interstate Power and Light Company, and MidAmerican Energy.

We estimated energy and coincident demand impacts for the program participants by using algorithms developed as part of the study of the calendar year 2007 program[1]. The estimated impacts were adjusted using billing analysis of the program clients.

PROGRAM COSTS AND IMPACTS

The WAP program spent $16,634,427 for materials, labor, and support while installing measures in 1,255 dwellings during calendar year (CY) 2017. Funding decreased by16.4% from the prior year. Federal and state funding accounted for 65.4% of overall expenditures while utilities funded the remaining 34.6%.

The program expenditures for materials, labor, and support averaged $13,255 in 2017 compared to $13,512 in 2016 (a 1.9% decrease). The major measures installed by the program in 2017 are essentially unchanged from the 2016 program.

First-year savings totaled 252,720 therms; 986,990 kWh electricity; 28,670 gallons of propane; and 1,932 gallons of fuel oil. First-year peak demand savings totaled 2,616 therms, 278 kW summer demand, and 273 kW winter demand.

Electricity savings averaged 786 kWh for 1,255 dwellings. The program saved an average of 240 therms of natural gas for 1,055 dwellings with gas impacts. In addition, the program delivered first-year savings of 276 gallons of propane in 104 dwellings with propane impacts, and 138 gallons of fuel oil in 14 dwellings with fuel oil impacts.

[1] Dalhoff Associates, LLC. Report on the Impacts and Costs of the Iowa Low-Income Weatherization Program – Calendar Year 2007, October 15, 2008.

First-year client energy cost savings totaled $363,629, averaging $290 per housing unit.

	Electricity (kWh and kW)			Natural Gas (therms)			Propane (gals)	Fuel Oil (gals)
	Overall	DCAA	Utility	Overall	DCAA	Utility	DCAA	DCAA
Energy	986,990	324,980	662,010	252,720	75,400	177,320	28,670	1,932
Summer Demand	278	88	190	NA	NA	NA	NA	NA
Winter Demand	273	101	172	2,616	783	1,833	NA	NA

Average Impacts[1] per Dwelling (for those receiving measures with a given fuel type)

	Electricity (kWh)			Natural Gas (therms)			Propane (gals)	Fuel Oil (gals)
	Overall	DCAA	Utility	Overall	DCAA	Utility	DCAA	DCAA
Energy	786	261	717	240	72	205	276	138
Summer Demand	0.222	0.071	0.206	NA	NA	NA	NA	NA
Winter Demand	0.218	0.081	0.186	2.5	0.7	2.1	NA	NA

Expenditures and First Year Client Fuel Bill Savings

Totals	Overall	DCAA	Utility	Averages	Overall	DCAA	Utility
Expenditures[2]	$16,634,427	$10,884,395	$5,750,031	**Expenditures**	$13,255	$8,673	$5,461
Client Fuel Savings	$363,629	$144,614	$219,015	**Client Fuel Savings**	$290	$115	$208

[1] Average impacts are for dwellings that received the measures, and so the averages of the Utility and DCAA will not total to the statewide average

[2] Measure expenditures, exclues utility admin expenses

UTILITY EXPENDITURES AND IMPACTS

The three major investor-owned utilities that provide gas and electricity in Iowa, Alliant-IPL, MidAmerican Energy, and Black Hills Energy, contributed $5,750,031 for weatherization measures, accounting for 34.6% of total program expenditures. The utility expenditures averaged $5,461 for the 1,053 dwellings that received utility-funded measures.

Utility-funded measures saved a total of 662,010 kWh, averaging of 717 kWh of electricity for the 923 dwellings with utility-funded electricity measures. Utility funded measures also saved a total of 177,320 therms, averaging 205 therms of natural gas for the 865 dwellings with utility-funded natural gas measures. Utility-funded measures reduced peak electricity demand by 190 kW in the summer and 172 kW in the winter, and provided 1,833 peak-day therms of gas savings. Utility-funded measures accounted for 70.2% of program electricity savings and 66.5% of program gas savings.

Utility-funded measures yielded first-year client bill savings of $219,015, averaging $208 per dwelling that received utility-funded efficiency measures. Electricity bill savings averaged $82 per household for utility-funded electricity measures. Gas bill savings averaged $166 for those with utility-funded gas measures.

FUEL CONSUMPTION ANALYSIS RESULTS

The natural gas savings were first estimated using the measure-specific revised algorithms developed for the CY 2007 program, and then adjusted based upon a billing analysis of the weatherization clients. The factors were applied to the estimated electricity, natural gas, propane, and fuel oil heating measures, and to natural gas and propane water heater measures. Along with providing better assessments of agency-level impacts, this procedure also provides a check on the accuracy of the algorithms used to estimate savings.

Natural gas savings for single family site-built dwellings averaged 247 therms $\pm$ 17 at 90% confidence. This represents a 24.5% savings $\pm$ 1.3% at 90% confidence for natural gas measures. Mobile home savings averaged 204 therms $\pm$ 59 at 90% confidence, equating to a 21.7% savings $\pm$ 5.1%.

Electricity savings were initially estimated using algorithms developed from savings of the 2005 and 2006 program. These estimates were adjusted based upon a billing analysis of electricity impacts of the 2012 and 2013 programs. The billing analysis for the CY 2017 program found that savings averaged 2,979 kWh $\pm$ 1,592 for dwellings with electric main heat, and 577 kWh $\pm$ 211 for dwellings heated with other fuels.

CHANGES IN PROGRAM DELIVERY AND REPORTING

The program began installing LEDs in 2017. Other than that, there were no significant changes in measures delivered for the CY 2017 program, as compared to the previous year.

Organization of the Report

Section 1, Summary of Program Impacts and Expenditures, provides the overall findings of the study, and relates these to prior year results. In addition, it provides broad summaries of impacts and costs for the agencies.

Section 2, Fuel Consumption Analysis and Assessment of Agency-Level Savings Adjustment Factors, details the methodology and results of the fuel consumption analysis. A standard comparison-adjusted pre/post weather-normalization methodology was used to assess impacts. A section was added at the end, entitled Comparison of Sample and Overall Program Populations.

Section 3, Detailed Spending and Impact Profiles by Funding Entity provides detailed result tables for the overall program, state funding, and for each of the three funding utilities. These tables include counts of installations and totals and average energy savings, demand impacts, and program expenditures by measure.

Section 4, Detailed Spending and Impact Profiles by Agency provides tables similar to those in Section 4 for each weatherization agency, for all measures installed.

Section 5, Detailed Spending and Impact Profiles by Agency for Utility Expenditures provides similar detail by agency, but is limited to measures funded by the utilities.

Appendix A provides a characterization of households and dwellings weatherized during 2017.

Appendix B provides tabular data of selected charts in Section 1 of the report.

1. SUMMARY OF PROGRAM IMPACTS AND EXPENDITURES

This section begins with impacts and expenditures for the overall program, followed by results attributed to utility funding. Various agency-level results and measure-specific results are presented in the final part.

PROGRAM SAVINGS AND EXPENDITURES

A total of 1,255 dwelling units were weatherized to completion during calendar year (CY) 2017, compared to 1,473 in 2016. First-year savings totaled 252,720 therms; 986,990 kWh electricity; 28,670 gallons of propane; and 1,932 gallons of fuel oil. First-year peak demand savings totaled 2,616 peak-day therms, 278 kW summer demand, and 273 kW winter demand.

First year natural gas savings are shown for the past ten years, by major measure groups in Figure 1.1 (historical data is listed in Appendix B as Fig 1.1).

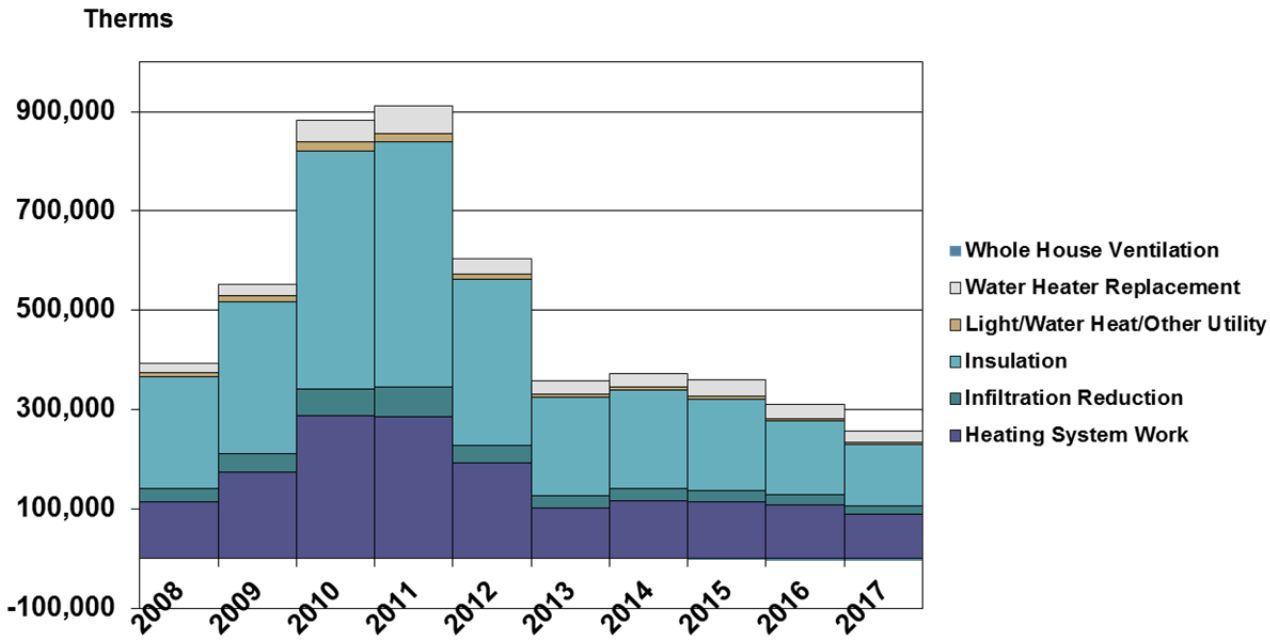

Figure 1.1 First Year Energy Savings (therms) – Program

Taken together, insulation, infiltration reduction, and heating system replacement work accounted for 91% of gas savings (Table 1.1). Note that the portion of infiltration reduction savings (7% of gas savings) shown here is attributed to weather-stripping and leak sealing -- the bulk of air leakage savings are allocated to dense packed wall and cavity insulation and are included in insulation savings shown for those measures.

Table 1.1 Gas Measure Savings by Major Measure Category

Measure Group	Savings (therms)	Percentage
Heating System Work	89,404	35.4%
Infiltration Reduction	16,743	6.6%
Insulation	123,312	48.8%
Light/Water Heat/Other Utility	3,874	1.5%
Water Heater Replacement	23,656	9.4%
Whole House Ventilation	-4,269	-1.7%

Electricity savings totaled 986,990 kWh for the program overall (Figure 1.2).

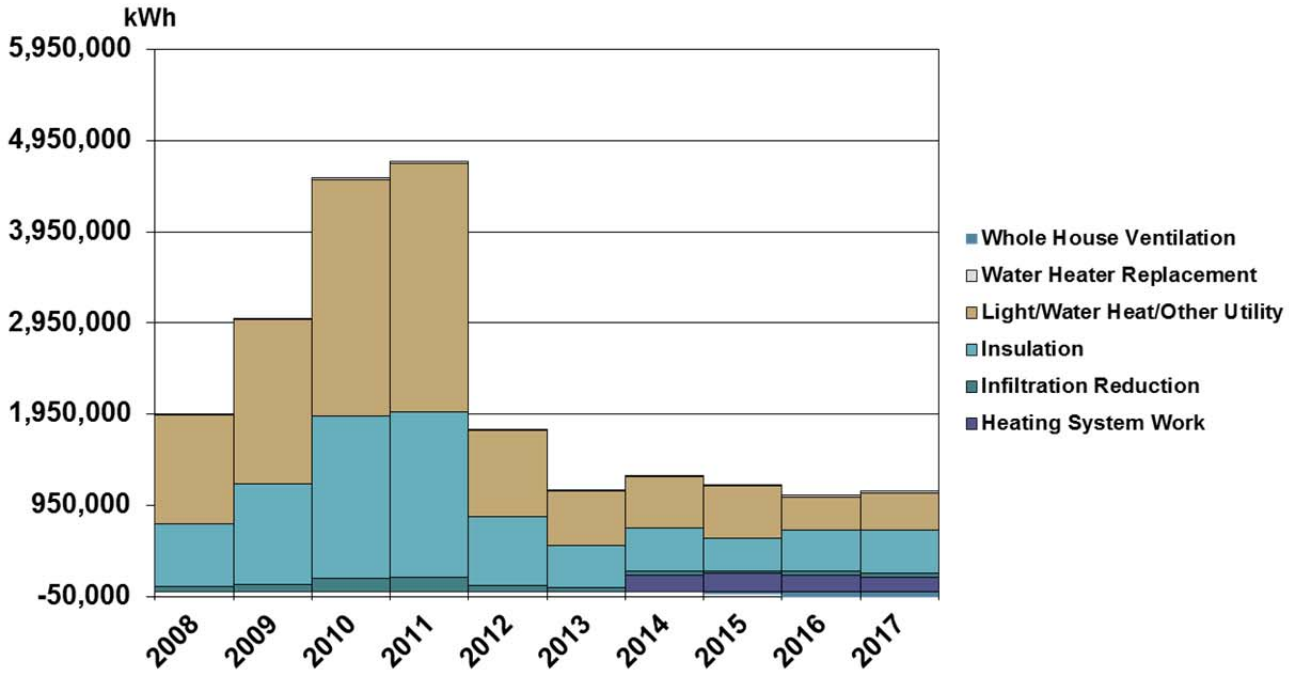

Figure 1.2 First Year Energy Savings (kWh) – Program

Insulation measures were credited with 48% of electricity savings (includes cooling savings and heating savings for homes with electric heat). Lighting, electric water heating measures, and refrigerator and freezer replacements and removals accounted for 39% (Table 1.2, historical data is listed in Appendix B as Fig 1.2).

Table 1.2 Electricity Savings by Major Measure Category

Measure Group	Savings (kWh)	Percentage
Heating System Work	159,209	16.1%
Infiltration Reduction	42,306	4.3%
Insulation	470,351	47.7%
Light/Water Heat/Other Utility	369,048	37.4%
Water Heater Replacement	15,857	1.6%
Whole House Ventilation	-70,405	-7.1%

Program expenditures for materials, labor, and support totaled $16,634,427, decreasing by 16.4 percent from $19,903,775 spent in 2016 (see Figure 1.3).

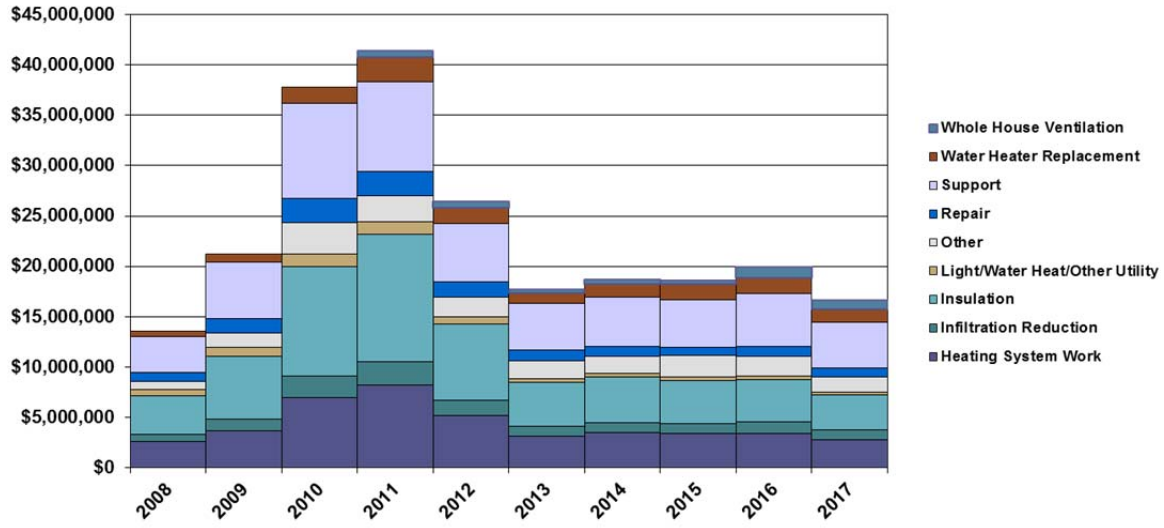

Figure 1.3 Overall Program Expenditures

Expenditures by major measure groups are shown in Table 1.3 (historical data is listed in Appendix B as Fig 1.3). Program support, which provides for agency overhead and administration, accounts for 27.5% of expenditures. Spending for efficiency measures, including infiltration reduction, insulation, lighting and water heater efficiency measures, accounts for 28.4% of expenditures. Heating system work (replacements, repairs, and tune-ups) and water heater replacements are installed for efficiency and/or health and safety; taken together these account for 24.3% of expenditures. The remainder of costs including repairs, whole house ventilation, and health and safety measures which together total 19.8%.

Table 1.3 Expenditures by Major Measure Category

Measure Group	Expenditures	Percentage
Heating System Work	$2,747,745	16.5%
Infiltration Reduction	$1,045,485	6.3%
Insulation	$3,440,858	20.7%
Light/Water Heat/Other Utility	$241,252	1.5%
Other	$1,558,300	9.4%
Repair	$828,300	5.0%
Support	$4,570,198	27.5%
Water Heater Replacement	$1,289,234	7.8%
Whole House Ventilation	$898,996	5.4%

The nominal average household expenditures for all dwellings weatherized in 2017 decreased by 2.1% to $13,255 (Figure 1.4, historical data is listed in Appendix B as Fig 1.4).

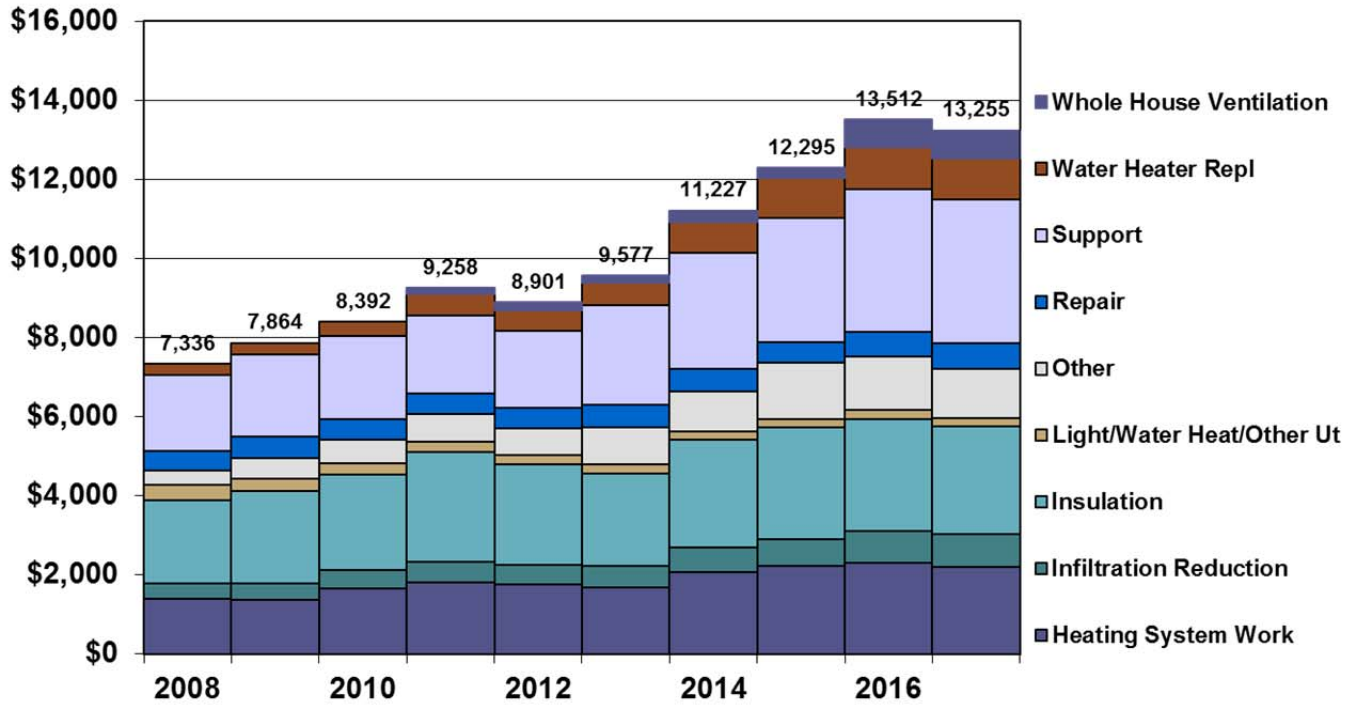

Figure 1.4 Average Program Expenditures per Housing Unit

CLIENT ENERGY BILL SAVINGS BY FUEL TYPE AND END-USE

Fuel prices were taken from the Department of Energy's Energy Information Agency (EIA) state monthly average prices for electricity and natural gas, and seasonal fuel costs for propane and fuel oil. The

savings for each measure are allocated by month so that the estimated bill savings reflect the seasonal fluctuations in fuel prices. State taxes are included and electricity and gas prices are adjusted to include only the variable cost of an additional kWh or therm -- the fixed portion of the bills for customer charges are removed (Figure 1.5). Electricity prices increased by 2.3% from 2016, gas prices increased by 4.2%, fuel oil prices increased by 21% (though remaining below 2013 - 2014 prices), and propane prices increased by 26% (though still below 2013 - 2015 prices).

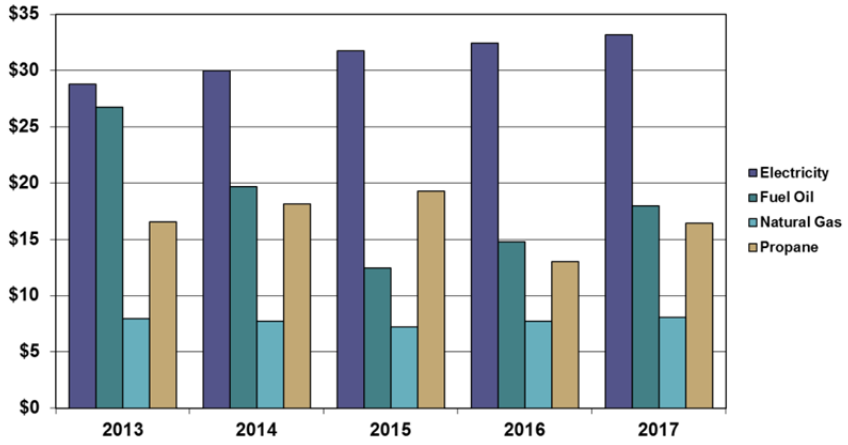

Figure 1.5 Average Fuel Cost per MBtu (Nominal Dollars)

The nominal first year client energy bill savings totaled $369,629 (Figure 1.6, historical data is listed in Appendix B as Fig 1.6).

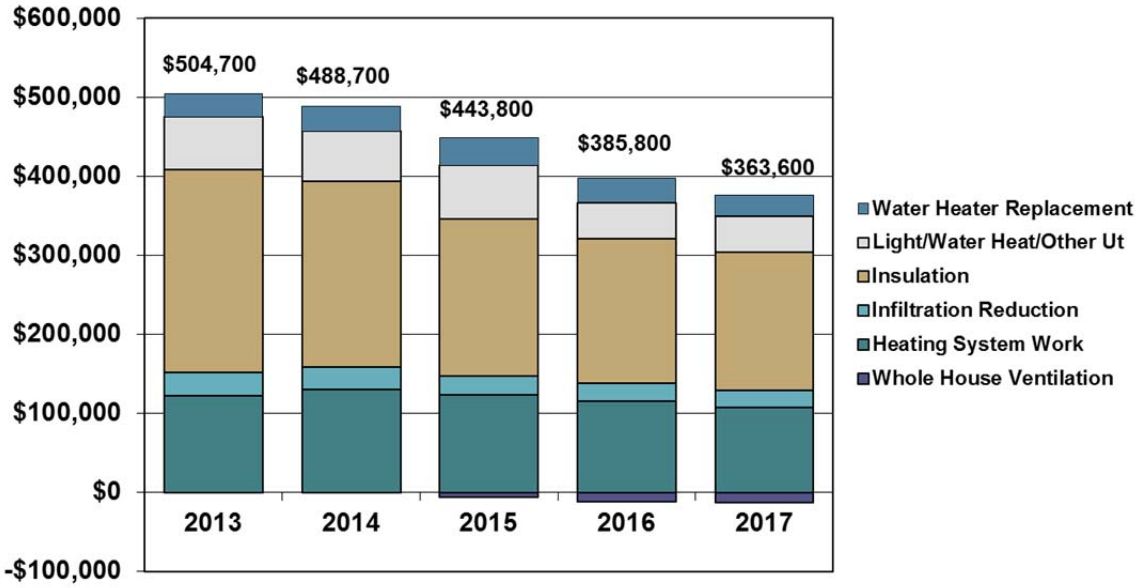

Figure 1.6 First Year Client Fuel Cost Savings (Nominal Dollars)

Insulation, infiltration reduction, and heating system work accounted for 84% of client bill savings (Table 1.4, historical data is listed in Appendix B as Fig 1.6). Lighting, water heating measures, and refrigeration measures accounted for 13%.

Table 1.4 First Year Client Fuel Cost Savings (Nominal Dollars)

Measure Group	Fuel Bill Savings	Percentage
Heating System Work	$107,911	29.7%
Infiltration Reduction	$21,220	5.8%
Insulation	$174,531	48.0%
Light/Water Heat/Other Utility	$46,038	12.7%
Water Heater Replacement	$27,027	7.4%
Whole House Ventilation	-$13,169	-3.6%

First-year client fuel bill savings averaged $290 (Figure 1.7), increasing from $262 in 2016.

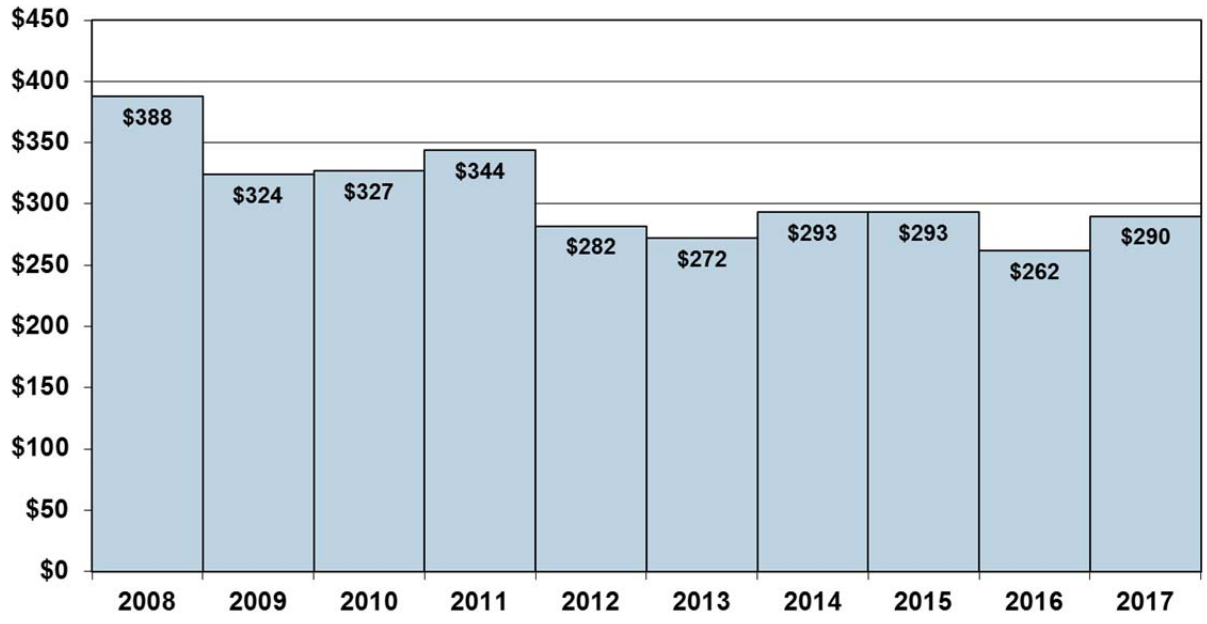

Figure 1.7 Average Annual Client Fuel Bill Savings per Housing Unit

Natural gas savings provided 56% of client bill savings, electricity accounted for 31%, propane accounted for 12%, and fuel oil provided 1%.

Approximately 45% of client bill savings are attributable to the heating impacts of shell measures (insulation and infiltration reduction), and 25% was due to heating system work. Taken together, heating impacts from shell improvements and heating system measures accounted for 71% of total client bill savings. Cooling savings accounted for another 9% and lighting, refrigeration, and water heater measures accounted for 14%.

Table 1.5 provides a breakdown of first year energy and bill savings, and expenditures by housing type and main heat fuel. Expenditures for site built single family units averaged over $13,000 for gas, propane, and fuel oil heated units, and had total savings of $268 for gas heated units, $514 for propane heated units, and $462 for fuel oil heated units. Costs for electrically-heated site built homes were $11,088 with bill savings of $378.

Expenditures for gas-heated mobile homes averaged $12,453 and saved $219 per unit. Propane-heated mobile homes averaged $9,509 in expenditures yielding $342 in savings. Fuel-oil heated mobile home expenditures averaged $12,844 and average $320 in savings (only 2 cases). Expenditures were $9,396 for electrically-heated mobile homes (only 3 cases) and saved $79.

Expenditures for multi-family units heated with gas averaged $10,319 and had first-year client bill savings of $212. A single propane multi-family dwelling cost $13,355 to weatherize and had $662 in savings. Electrically-heated multi-family unit spending averaged $4,182 and saved $140 for nine units.

Table 1.5 First Year Energy and Bill Savings, and Expenditures by Housing Type and Main Heat Fuel

		Main Heat		Electricity		
	Number of Units	Savings (therms, gals)	Bill Savings ($)	Savings (kWh)	Bill Savings ($)	Expenditures
Site Built Single Family						
Gas	943	244	$196	625	$72	$13,685
Propane	93	283	$426	764	$88	$13,747
Fuel Oil	12	144	$360	884	$102	$13,187
Electricity	68	-	-	3,530	$378	$11,088
Mobile Home						
Gas	75	204	$165	476	$54	$12,453
Propane	10	195	$294	422	$48	$9,509
Fuel Oil	2	100	$250	613	$70	$12,884
Electricity	3	-	-	748	$79	$9,396
Multi-Family						
Gas	37	193	$155	498	$57	$10,319
Propane	1	388	$586	677	$76	$13,355
Fuel Oil	-	-	-	-	-	-
Electricity	9	-	-	1,321	$140	$4,182

UTILITY SAVINGS AND EXPENDITURES

The utilities funded measures in 1,053 dwellings, with first year savings totaling 177,320 therms and 662,010 kWh. These measures reached 84% of all units weatherized by the program, and accounted for 70% of gas savings and 67% of electricity savings.

Figure 1.8 provides a ten year history of gas savings attained by utility-funded measures (Figure 1.8, historical data in Appendix B listed as Fig 1.8).

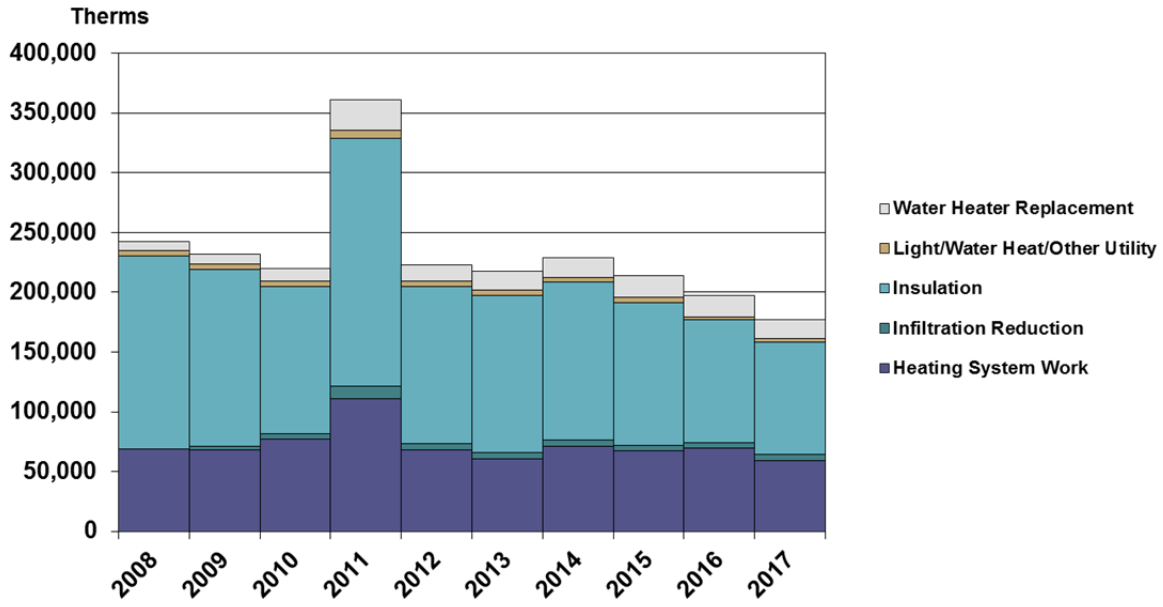

Figure 1.8 First Year Energy Savings (therms) – Utility only

Utility expenditures on gas measures were mostly due to insulation (53% of expenditures) and heating system work (33%). The heating system work was almost entirely for replacements, all of which were specified as replacements for efficiency (Table 1.6).

Table 1.6 First Year Energy Savings (therms) by Measure Group – Utility only

Measure Group	Savings (therms)	Percentage
Heating System Work	58,964	33.3%
Infiltration Reduction	5,275	3.0%
Insulation	93,879	52.9%
Light/Water Heat/Other Utility	2,838	1.6%
Water Heater Replacement	16,361	9.2%

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The ten year history of electricity measure savings are shown in Figure 1.9, with first year savings totaling 662,010 kWh in 2017 (Figure 1.9 historical data in Appendix B listed as Fig 1.9).

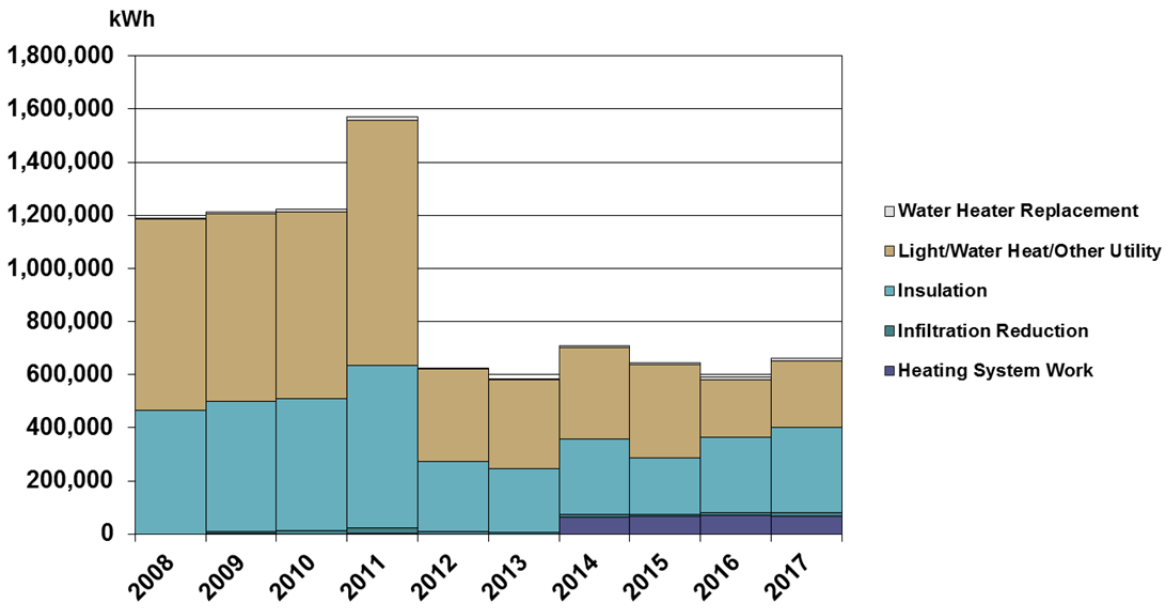

Figure1.9 First Year Energy Savings (kWh) – Utility only

The electricity savings attributed to insulation include cooling savings and heating savings in units with electric main heat; these accounted for 49% of electricity savings. Another 38% of electricity savings were due to lighting, refrigerator replacements or removals, electric water heater measures (Table 1.7).

Table 1.7 First Year Energy Savings (kWh) by Measure Group – Utility only

Measure Group	Savings (kWh)	Percentage
Heating System Work	66,476	10.0%
Infiltration Reduction	12,372	1.9%
Insulation	321,895	48.7%
Light/Water Heat/Other Utility	251,166	38.0%
Water Heater Replacement	9,580	1.4%

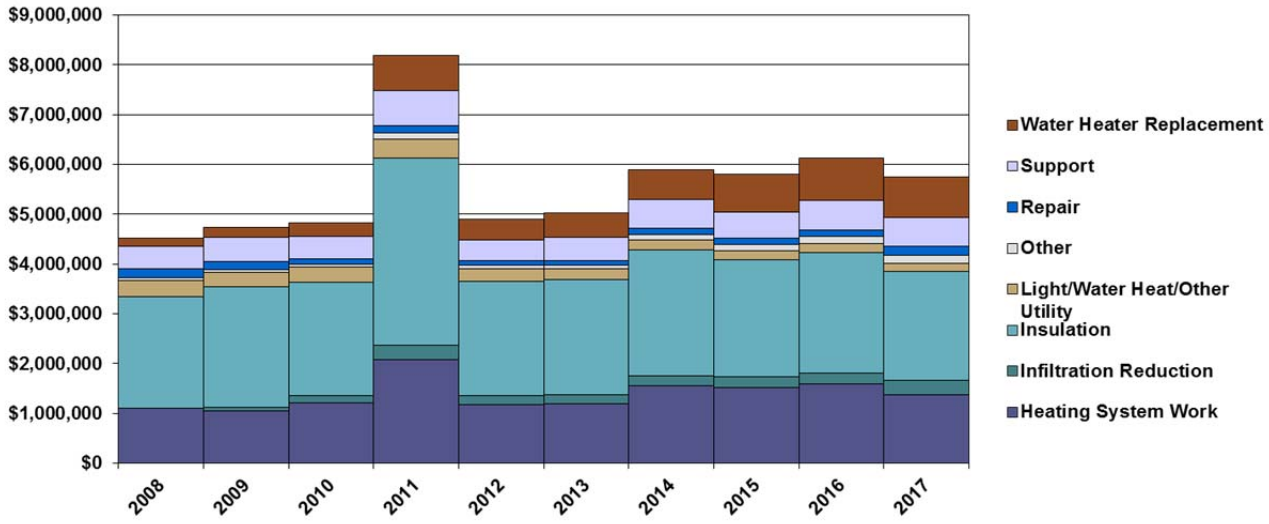

Figure 1.10 Utility Expenditures

The utilities spent $5,750,031 for program measures, labor, and support in 2017, 6.3% less than in 2016 (Figure 1.10, Table 1.8, historical data in Appendix B listed as Fig 1.10). Utility expenditures accounted for 34.6% of the total low-income program expenditures.

Table 1.8 Expenditures by Measure Group – Utility only

Measure Group	Expenditures	Percentage
Heating System Work	$1,379,543	24.0%
Infiltration Reduction	$273,962	4.8%
Insulation	$2,190,461	38.1%
Light/Water Heat/Other Utility	$160,696	2.8%
Other	$176,289	3.1%
Repair	$168,145	2.9%
Support	$585,371	10.2%
Water Heater Replacement	$815,113	14.2%

In addition, the utilities spent $260,580 on program administration. Utility expenditures totaled $6,010,611 including spending on program measures, labor, support, and administration.

Figure 1.11 Average Utility Spending on Efficiency Measures (excludes Support and Administration), and Percentage of Homes Receiving Utility-Funded Measures with Impacts

Figure 1.11 provides the average utility funding for efficiency measures and percentages of dwellings with utility funding for the past five years. The utilities installed measures in 84% of units, increasing from 76-77% for the previous three years.

Table 1.9 provides details of utility expenditures and the percentage of units weatherized by the program for each utility.

Table 1.9 Utility Expenditures for Measures, Labor, and Support, and Counts of Units with Impacts

	Total Expenditures		Counts of Dwellings With Energy Impacts			
Utility	Excluding Program Support	With Program Support	Electric Impacts	Pct of Prg	Gas Impacts	Pct of Prg
Alliant IPL	$ 2,498,500	$ 2,771,500	548	43.7%	379	35.9%
Black Hills Corp	$ 477,300	$ 527,200			113	10.7%
MidAmerican	$ 2,188,800	$ 2,451,300	376	30.0%	373	35.4%
Total Utilities	$ 5,164,700	$ 5,750,000	923	73.5%	865	82.0%

The savings and client bill savings for utility-funded measures are summarized by utility in Table 1.10.

Table 1.10 First Year Fuel and Client Bill Savings Impacts from Utility-Funded Measures

Utility	First Yr Fuel Savings	Pct of Prg	Summer Demand Savings	Pct of Prg	Winter Demand Savings	Pct of Prg	First Year Fuel Cost Savings	Pct of Prg
Electricity	(kWh)		(kW)		(kW)			
Alliant IPL	380,120	38.5%	110	39.9%	95	34.9%	$ 43,490	38.8%
MidAmerican	280,080	28.4%	80	28.3%	76	27.9%	$ 31,920	28.5%
Total Electric Utilities	662,010	67.1%	190	68.2%	172	62.9%	$ 75,620	67.5%
Gas	Therms				Peak Day Therms			
Alliant IPL	79,880	31.6%			826	31.6%	$ 64,490	31.7%
Black Hills Corp	19,280	7.6%			198	7.6%	$ 15,590	7.7%
MidAmerican	78,130	30.9%			809	30.9%	$ 63,280	31.1%
Total Gas Utilities	177,320	70.2%			1,833	70.1%	$ 143,400	70.5%

Utility-funded measures yielded first-year client bill savings of $219,015, averaging $208 per dwelling that received utility-funded measures. Electricity bill savings from utility-funded measures averaged $82 per household for utility-funded electricity measures. Gas bill savings from utility-funded measures averaged $166 for households with utility-funded gas measures.

Table 1.11 provides the cost of energy savings for utility-funded measures with energy impacts. The cost of conserved energy over all housing types ranged from $21.47 to $22.78 per therm (first year savings) and $1.22-$1.23 per kWh.

Table 1.11 Costs of First-Year Energy Savings from Utility-Funded Measures

	Cost of Gas Savings	Number of Units	Cost of Elec Savings	Number of Units
Alliant-IPL				
Overall	$22.78	380	$1.22	549
Site-Built	$22.90	358	$1.24	489
Mobile Home	$16.45	13	$1.32	38
Multi-family	$22.77	9	$0.75	22
Black Hills Corp				
Overall	$22.59	113	-	
Site-Built	$22.78	102	-	
Mobile Home	$24.58	6	-	
Multi-family	$16.46	5	-	
MidAmerican				
Overall	$21.47	373	$1.23	376
Site-Built	$21.57	323	$1.23	338
Mobile Home	$21.22	38	$1.46	26
Multi-family	$18.21	12	$0.85	12

Table 1.12 provides the percentages of total expenditures for measures that were funded by the utilities, and demonstrates the high funding percentage provided by the utilities for efficiency measures. The utilities funded the majority of insulation, heating system and water heater replacements, water heater efficiency measures, lighting and refrigerator replacements, programmable thermostats, and water heater ventilation.

Table 1.12 Utility Funding Percentages by Measure

	Expenditures		
Measure	Total	Utility	Utility Percentage
Wall Insulation	$1,350,475	$926,199	68.6%
Attic Insulation	$1,238,859	$850,724	68.7%
Kneewall Insulation	$128,698	$90,462	70.3%
Floor/Crawlspace Insulation	$326,441	$209,731	64.2%
Bandjoist Insulation	$101,910	$65,336	64.1%
Infiltration Reduction	$1,045,485	$273,962	26.2%
High Efficiency Htg Sys Repl.	$2,168,346	$1,319,903	60.9%
Electric Htg Sy/Ht Pump Repl.	$143,840	$31,788	22.1%
Pipe Wrap	$16,288	$11,357	69.7%
Faucet Aerator	$1,901	$1,303	68.5%
Shower Head	$1,741	$1,284	73.7%
Water Heater Replacement - Hi Eff	$1,289,234	$815,113	63.2%
Lighting	$47,166	$33,294	70.6%
Exchange Refrigerator	$149,737	$103,411	69.1%
Exchange Freezer	$24,784	$10,458	42.2%
Repairs	$828,300	$168,145	20.3%
Programmable Thermostat	$8,017	$8,017	100.0%
Htg Sys Tune/Clean	$75,601	$19,836	26.2%
Htg Sys Ventilation	$155,412	$85,593	55.1%
Water Heater Ventilation	$100,119	$66,666	66.6%
Support	$4,570,198	$585,371	12.8%

Section 3 of this report, Detailed Spending and Impact Profiles by Funding Entity provides detailed result tables for the overall program, state funding, and for each of the three funding utilities. Those tables include counts of installations and totals and average energy savings, demand impacts, and program expenditures by measure.

EXPENDITURES AND SAVINGS BY AGENCY AND MEASURE

Figure 1.12 shows the average annual energy cost savings by agency. The series are arranged from left to right in the chart according to left to right and top to bottom and in the legend, e.g., Bldg Shell Cooling, then Bldg Shell Heating, then Heating system, etc.

Savings attained by each agency were adjusted according to results of the natural gas and electricity fuel consumption analyses, detailed in Section 2 of this report. The estimated impacts for propane and fuel oil were adjusted using the same factors as those used for natural gas.

Bear in mind that various factors affect the values shown in this chart, factors beyond quality or intensity of weatherization treatment (an example is climate variations within the state). Consequently, these results should not be used as a basis for comparing the quality, attention to detail, dedication, or other factors of agency performance.

The wide variation in results across agencies is typical of what we've observed in past years.

The statewide average client bill savings was $290 per dwelling. The average first-year client bill savings widely varied across agencies, from a low of $147 per dwelling for Matura to a high of $388 for North Iowa and $376 for CA Southeast Iowa.

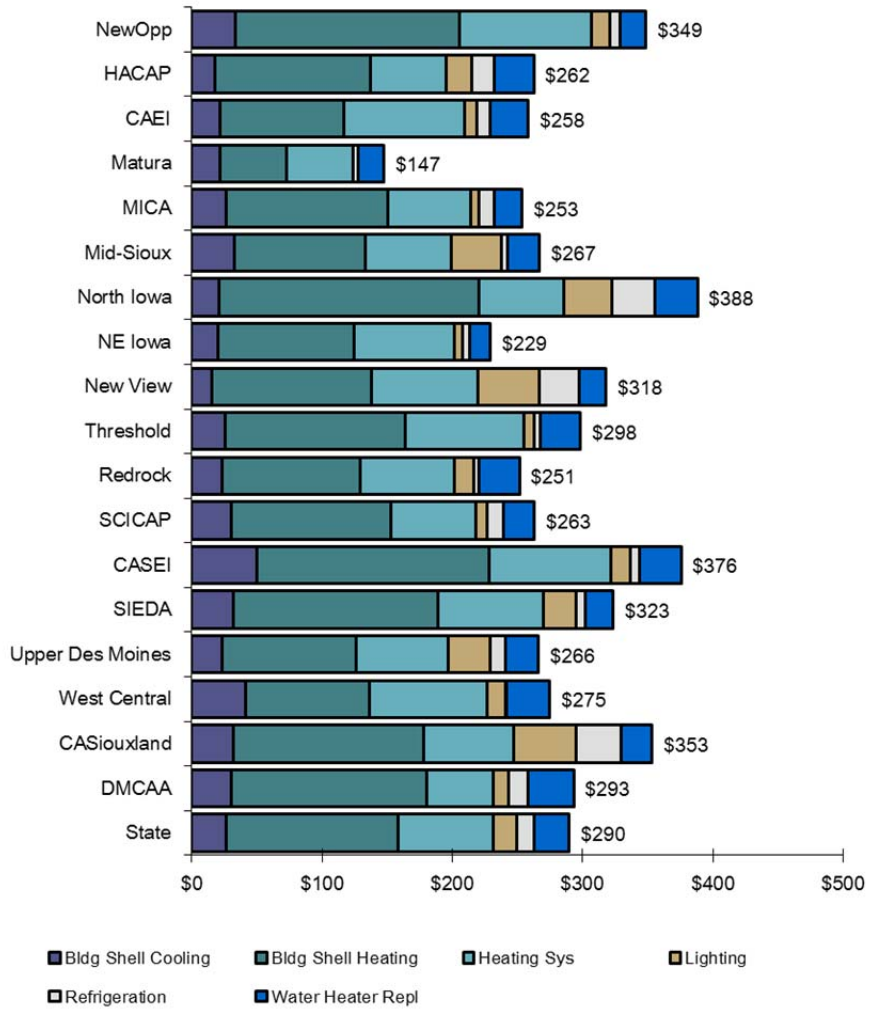

Figure 1.12 Average Annual Fuel Bill Savings per Housing Unit by Agency

Figure 1.13 shows the average expenditures for all households with impacts, ranging from a low of $7,882 for Northeast Iowa to $16,563 for CA Southeast IA. The statewide average expenditure was $13,255 per dwelling unit.

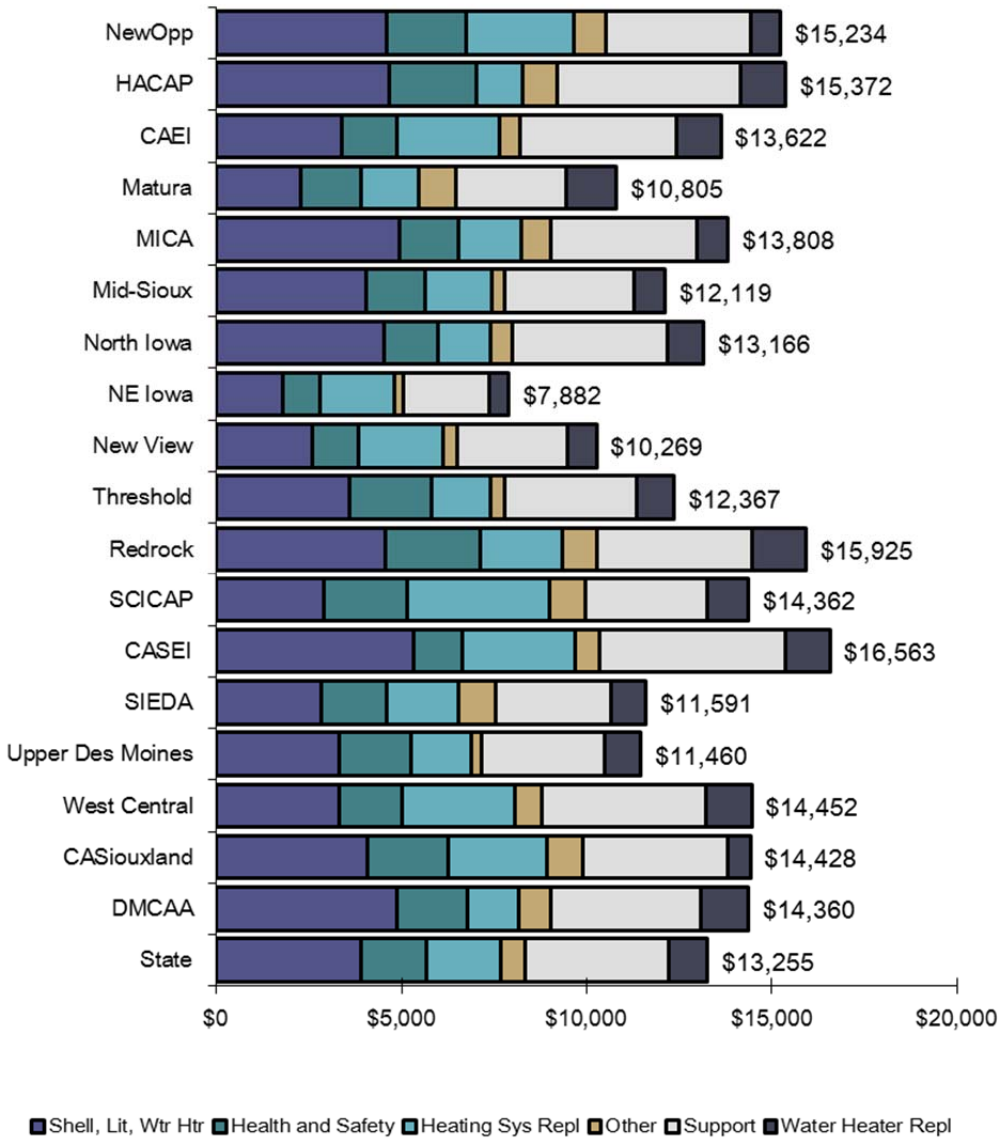

Figure 1.13 Average Expenditures per Housing Unit by Agency

The average installation rates, costs, and savings for energy efficiency and heating and water heating system replacement measures for calendar year programs 2015-2017 are shown in Figures 1.14a and 1.14b.

The installation rates of nearly all insulation measures and infiltration reduction remained about the same over the past three years (see Figure 1.14a, left chart).

Condensing heating system replacement rates declined by about 10% from 2016. Non-condensing heating system replacements increased to about 8% over the past year.

The installation rates of water heater efficiency measures decreased with the exception of pipe insulation. The rates of high-efficiency water heater replacements also decreased, down to 66% from 69% in 2016. Refrigerator and freezer replacement rates slightly to 16% and 4.2% respectively.

Figure 1.14a, right chart, shows that the average measure costs. Insulation costs fell in the same range as the prior two years. Condensing heating system costs have decreased for the past two years. Costs for non-condensing heating systems declined considerably, to $1,830 in 2017. The cost of high efficiency water heater replacements was essentially unchanged (no standard efficiency water heaters were installed in 2017).

The average first-year energy gas and electricity savings for each major measure is shown in Figures 1.14b.

The average natural gas savings by measure declined over the past three years for wall insulation and ceiling/attic insulation. Floor/crawlspace savings increased slightly.

Gas savings for condensing heating system were similar to 2016 at 118 therms. Non-condensing heating system savings increased considerably in 2017. These installations occur in situations where condensing heating systems cannot be installed due to ventilation issues, and generally for atypical situations.

The average electricity savings from all insulation measures increased: there were only 33 homes with electric heat. These differences are driven in part by year-to-year variation in housing stock for the few housing units that use electric main heat.

Savings from refrigerator and freezer replacements were higher in 2017.

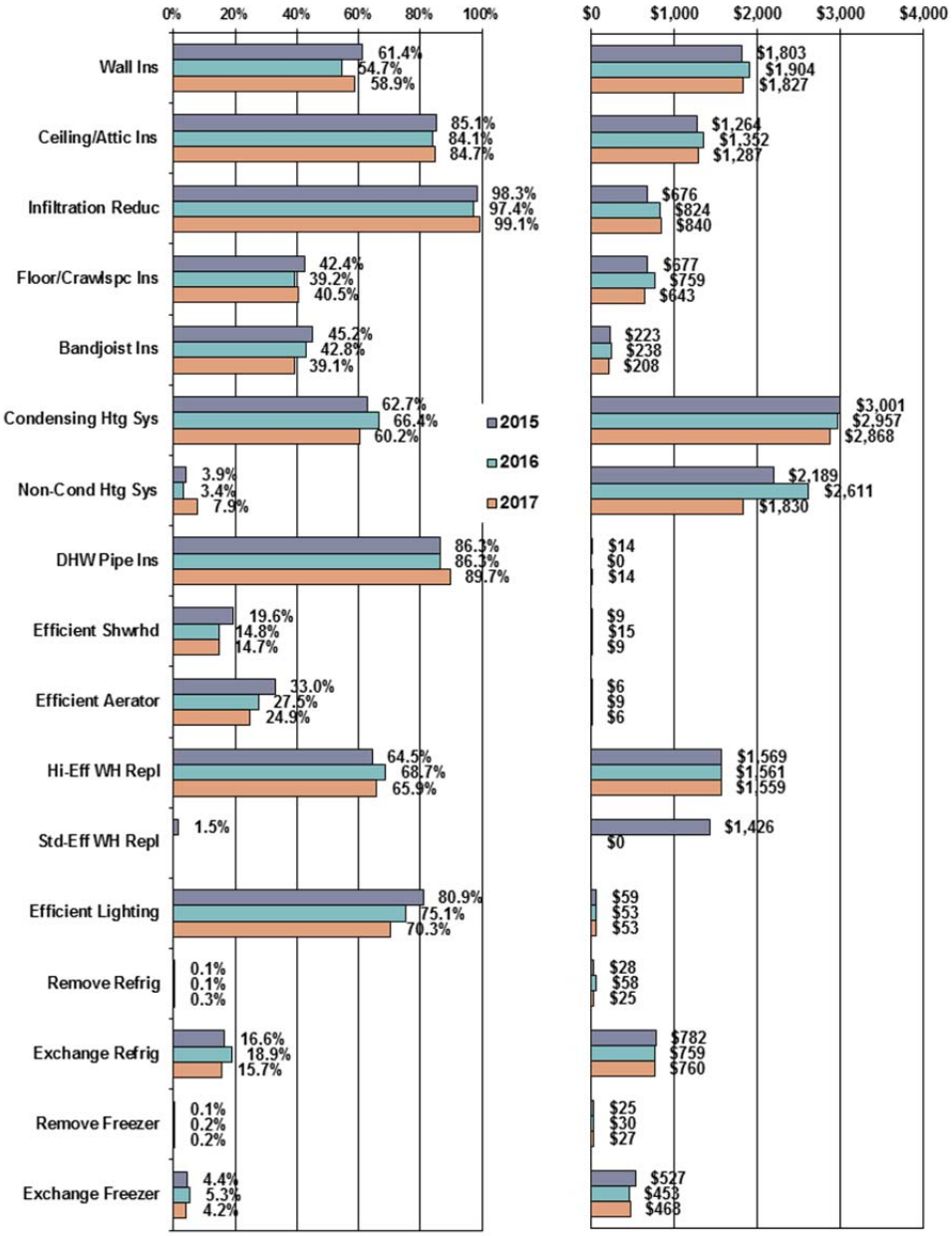

Figure 1.14a Average Installation Rates and Measure Costs of Efficiency Measures, Heating System and Water Heating Replacements

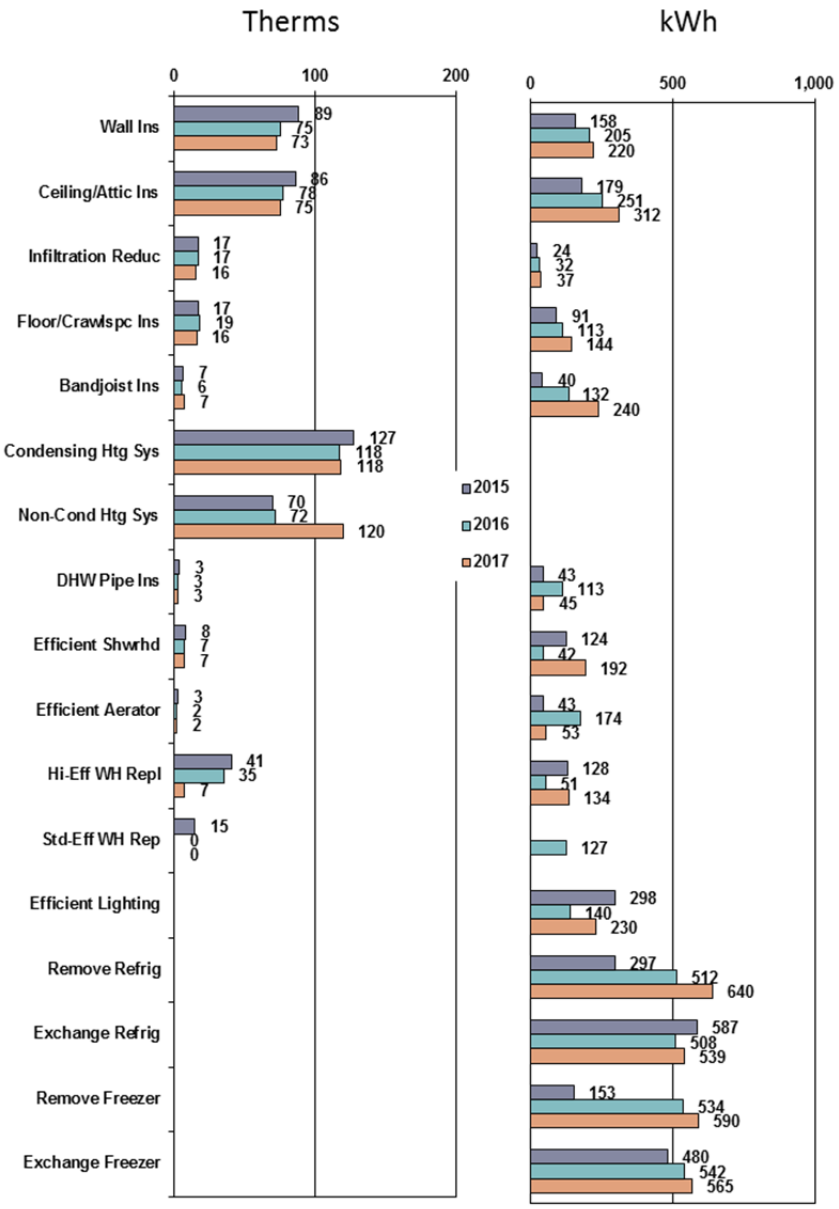

Figure 1.14b Average Gas and Electricity Savings of Efficiency Measures, Heating System and Water Heating Replacements

Tables 1.13 and 1.14 provide tabular data corresponding to data shown in Figure 1.14a&b and but over a five year period. Table 1.13 provides a listing of the percentage of households receiving measures. Small percentage changes from the previous year are to be expected, and typically correct for lower or higher installation rates of the prior year. The year over year (recent year) change tends to be greatest for measures with very low installation rates and/or savings which are not indicative of major changes in the installation protocols for these measures or program impacts.

Table 1.13 Installation Rates of Measures

Measure	2013	2014	2015	2016	2017	Recent Year Change (%)
Insulation and Infiltration Reduction Measures						
Wall Insulation	59.8	60.4	61.4	55.1	58.9	6.9%
Ceiling/Attic Insulation	82.0	83.1	85.1	84.7	84.7	0.0%
Floor/Crawlspace Insulation	42.8	43.5	42.4	39.4	40.5	2.6%
Bandjoist Insulation	38.4	39.6	45.2	43.1	39.1	-9.3%
Infiltration Reduction	97.5	97.4	98.3	98.1	99.1	1.1%
Heating System Measures						
Htg. Sys. Replacement	58.4	64.0	66.6	70.3	68.1	-3.0%
High Eff Htg Sys Repl	50.6	58.7	62.7	66.8	60.2	-9.9%
Std/Unspec Eff Htg Sys Repl	7.8	5.3	3.9	3.4	7.9	130.8%
Htg. Sys. Tune and Clean	39.5	32.9	27.5	26.3	30.0	13.8%
Heating System Safety Check	15.0	13.1	15.2	9.3	0.1	-99.1%
Heating System Ventilation	33.3	24.4	43.4	52.9	59.1	11.8%
Water Heater Measures						
Pipe Wrap	75.0	76.6	86.3	86.9	89.7	3.3%
Shower Head	21.7	22.5	19.6	14.9	14.7	-1.1%
Faucet Aerator	33.0	35.4	33.0	27.7	24.9	-10.2%
Water Heater Replacement	48.2	54.1	65.9	69.2	65.9	-4.7%
Hi-Eff Wtr Htr Repl.	38.9	50.2	64.5	69.2	65.9	-4.7%
Std-Eff Wtr Htr Repl.	9.4	3.8	1.5	-	-	-
Water Heater Ventilation	20.3	29.8	31.5	39.8	50.9	27.8%
Water Heater Repair	9.7	7.7	5.4	6.5	9.4	44.8%
Lighting Measures						
Efficient Lighting	86.1	82.9	81.6	75.6	70.4	-6.9%
Refrigeration Measures	24.8	22.0	19.7	22.4	18.8	-16.1%
Refrigerator Removal	0.3	0.1	0.1	0.1	0.3	133.1%
Refrigerator Exchange	21.4	18.8	16.6	19.0	15.7	-17.4%
Freezer Removal	0.1	0.2	0.1	0.2	0.2	16.6%
Freezer Exchange	4.7	4.4	4.4	5.3	4.2	-20.8%
Health and Safety (other than heating & water heating measures listed above)						
CO Detector	81.1	84.4	85.2	90.9	93.9	3.3%
Smoke Detector	59.9	59.8	61.2	65.3	68.4	4.7%
Exhaust Ventilation	80.4	82.4	84.5	89.3	89.8	0.5%
Fuses	0.1	0.5	0.9	0.7	0.8	16.6%
Repairs	88.4	87.3	88.1	87.9	92.3	5.0%

Table 1.14 shows details of the average installed costs for each measure over the past 5 years. As with the installation rates, the greatest changes tend to occur for measures with few installations and/or small costs.

Table 1.14 Average Measure Costs

Measure	2013	2014	2015	2016	2017	Recent Year Change (%)
Insulation and Infiltration Reduction Measures						
Wall Insulation	1,466	1,753	1,803	1,904	1,827	-4.0%
Ceiling/Attic Insulation	1,124	1,247	1,264	1,352	1,287	-4.8%
Infiltration Reduction	556	641	676	824	840	2.0%
Floor/Crawlspace Insulation	683	674	677	759	643	-15.3%
Bandjoist Insulation	164	203	223	238	208	-12.9%
Heating System Measures						
Htg. Sys. Replacement						
Condensing Htg Sys Repl	2,388	2,858	3,001	2,957	2,868	-3.0%
Non-Cond Htg Sys Repl	2,766	2,145	2,189	2,611	1,830	-29.9%
Htg. Sys. Tune and Clean	155	219	186	214	201	-6.1%
Heating System Safety Check	135	138	145	149	85	-43.0%
Heating System Ventilation	238	236	236	232	209	-9.7%
Water Heater Measures						
Pipe Wrap	5	12	14	15	14	-2.1%
Shower Head	9	10	9	9	9	4.2%
Faucet Aerator	4	6	6	6	6	-0.5%
Water Heater Replacement						
Hi-Eff Wtr Htr Repl.	1,175	1,448	1,569	1,561	1,559	-0.1%
Std-Eff Wtr Htr Repl.	1,097	1,638	1,426	-	-	-
Water Heater Ventilation	213	237	188	175	157	-10.7%
Water Heater Repair	102	115	122	130	120	-7.4%
Lighting Measures						
Efficient Lighting (avg spent per home)	60	63	59	53	53	0.2%
Refrigeration Measures						
Refrigerator Removal	18	20	28	58	25	-56.5%
Refrigerator Exchange	698	688	782	759	760	0.1%
Freezer Removal	25	23	25	30	27	-11.1%
Freezer Exchange	498	463	527	453	468	3.2%
Health and Safety (other than heating & water heating measures listed above)						
CO Detector	49	57	62	66	72	9.2%
Smoke Detector	47	52	59	54	58	8.9%
Exhaust Ventilation	659	734	830	881	887	0.7%
Fuses	22	103	82	128	113	-11.6%
Repairs	636	668	589	723	715	-1.1%
Support	2,631	3,106	3,452	3,755	3,677	-2.1%

Note: Kneewall insulation was reported with wall insulation prior to 2007, it is now bundled with Ceiling./Attic Insulatic

SAVINGS OF WATER HEATER, LIGHTING, AND REFRIGERATION MEASURES

Table 1.15 shows the installation rates for energy efficiency measures other than space heating or cooling. These measures include water heater efficiency measures, lighting, and refrigeration measures. Statewide, client bill savings averaged $37 for these measures. The highest average bill savings were attained by Siouxland at $95 per unit. Matura averaged less than $7 per dwelling.

Table 1.15 Installation Rates and Savings of Baseload Measures

	Water Heating			Lighting	Refrigeration				
Agency	Pipe Wrap	Eff Shower-head	Eff Faucet Aerator	Efficient Lighting	Exchange Refrig	Exchange Freezer	Remove Refrig	Remove Freezer	Average First Year Bill Savings
New Opp	45%	2%	10%	88%	2%	10%	0%	0%	$24.42
HACAP	99%	1%	0%	77%	21%	8%	0%	0%	$40.71
Eastern IA	92%	18%	56%	74%	13%	5%	0%	0%	$26.62
Matura	67%	0%	0%	0%	7%	0%	0%	0%	$6.25
MICA	58%	3%	4%	43%	11%	5%	1%	0%	$20.18
Mid-Sioux	92%	16%	14%	84%	8%	0%	0%	0%	$49.55
North Iowa	93%	38%	79%	85%	37%	12%	1%	3%	$78.28
NE Iowa	90%	0%	0%	48%	8%	1%	1%	0%	$15.99
New View	91%	0%	0%	89%	46%	6%	0%	0%	$81.61
Threshold	99%	24%	2%	64%	8%	1%	0%	0%	$18.45
Redrock	94%	6%	0%	94%	6%	0%	0%	0%	$22.91
SCICAP	55%	41%	32%	73%	9%	5%	0%	0%	$31.22
SE Iowa	98%	0%	0%	58%	9%	4%	0%	0%	$25.38
SIEDA	97%	1%	1%	52%	8%	3%	0%	0%	$37.25
Upper Des Moines	100%	0%	0%	89%	19%	1%	0%	0%	$48.55
West Central	91%	43%	70%	83%	2%	0%	0%	0%	$23.24
CAA Siouxland	98%	63%	3%	93%	33%	15%	3%	0%	$95.00
Polk County	99%	26%	77%	70%	21%	0%	0%	0%	$34.81
State	90%	15%	25%	70%	16%	4%	0%	0%	$36.68

TRENDS IN THE INSTALLATION RATES OF LIGHTING, REFRIGERATION, AND HEATING SYSTEM REPLACEMENTS

This section focuses on trends in the installation rates of several efficiency measures phased into the joint utility/WAP program, including efficient lighting, heating system replacements, and refrigeration measures. These are shown in Figures 1.15 through 1.18.

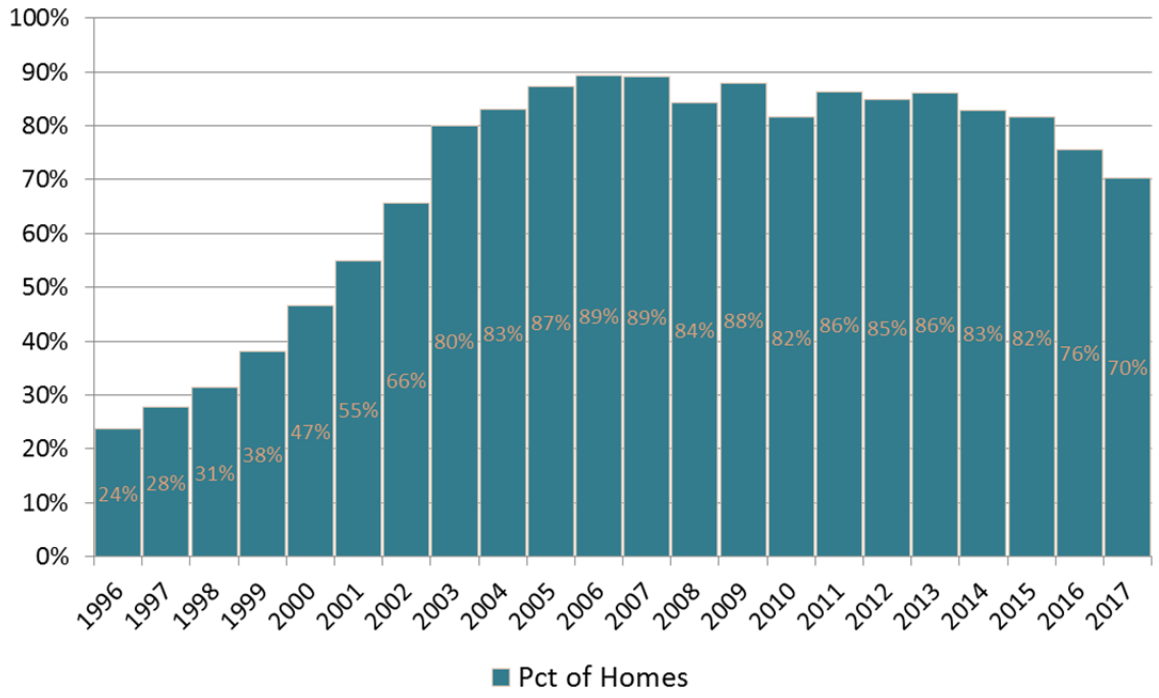

Figure 1.15 Percentage of Housing Units Receiving Lighting Measures

Figure 1.15 shows the percentage of dwellings receiving at least one lighting measure for each year, beginning in 1996. Lighting was installed in 38% of dwellings in 1996 and peaked in 2006 and 2007 at 89%. The installation rates for lighting have decreased over the past four years as more units already have efficient lighting installed. In 2017, 70% of units received lighting from the program.

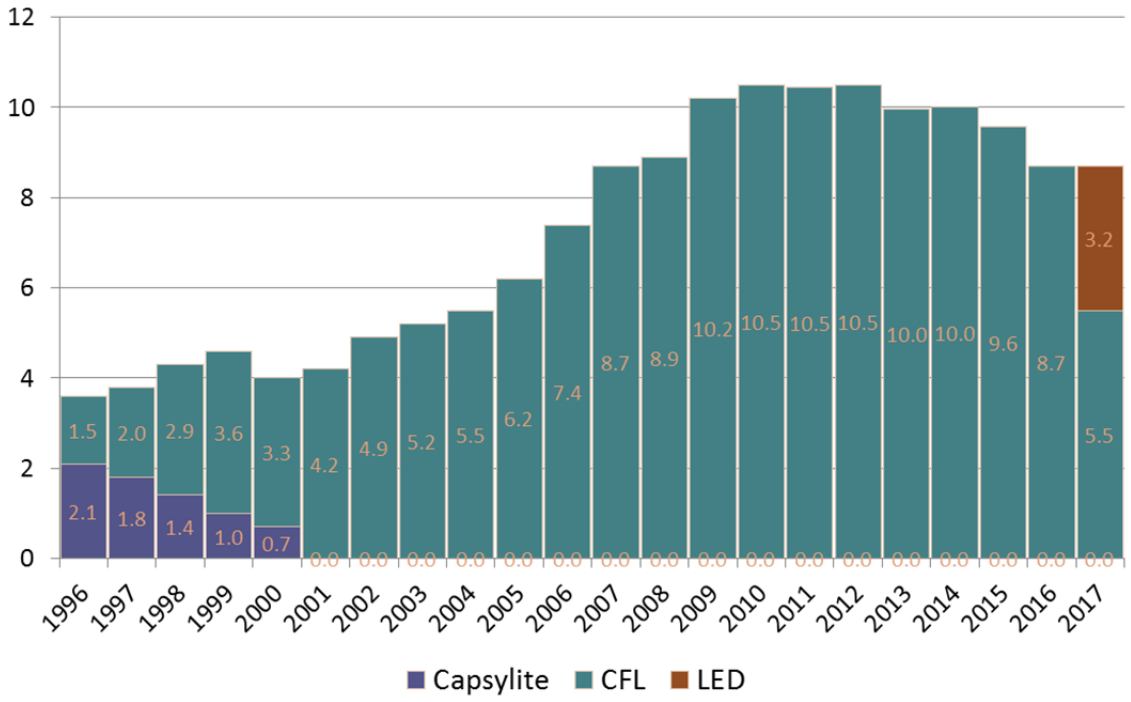

Figure 1.16 Average Number of Bulbs Installed for Housing Units Receiving Lighting Measures

The average number of bulbs installed in dwellings that received at least one lighting measure averaged 8.7 bulbs per house 2017. Thirty-five percent of bulbs were LEDs. The peak installation rate for all bulbs occurred from 2010-2013 at 10.5 bulbs per dwelling (Figure 1.16).

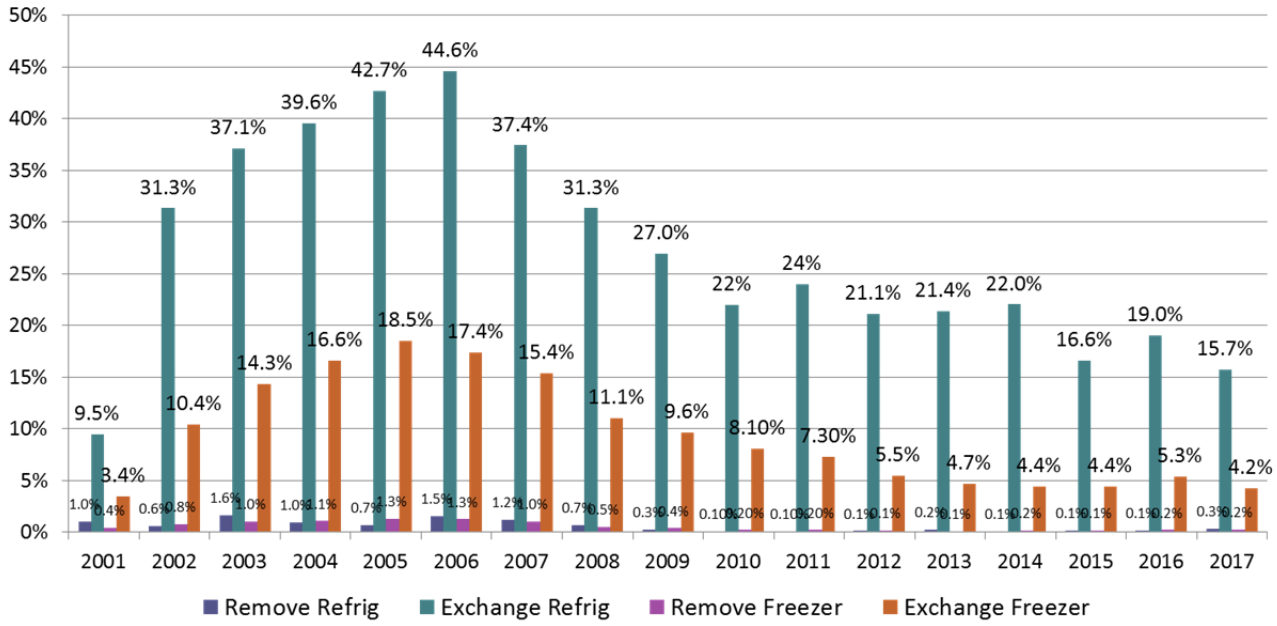

Figure 1.17 Installation Rates of Refrigeration Measures

Figure 1.17 shows the initial ramp up of refrigeration measure installation rates as well as declines in recent years as the efficiency of in-place units is increasing in the client population. The refrigerator replacement rates are at their lowest (15.7%) since the program began ramping up in 2001.

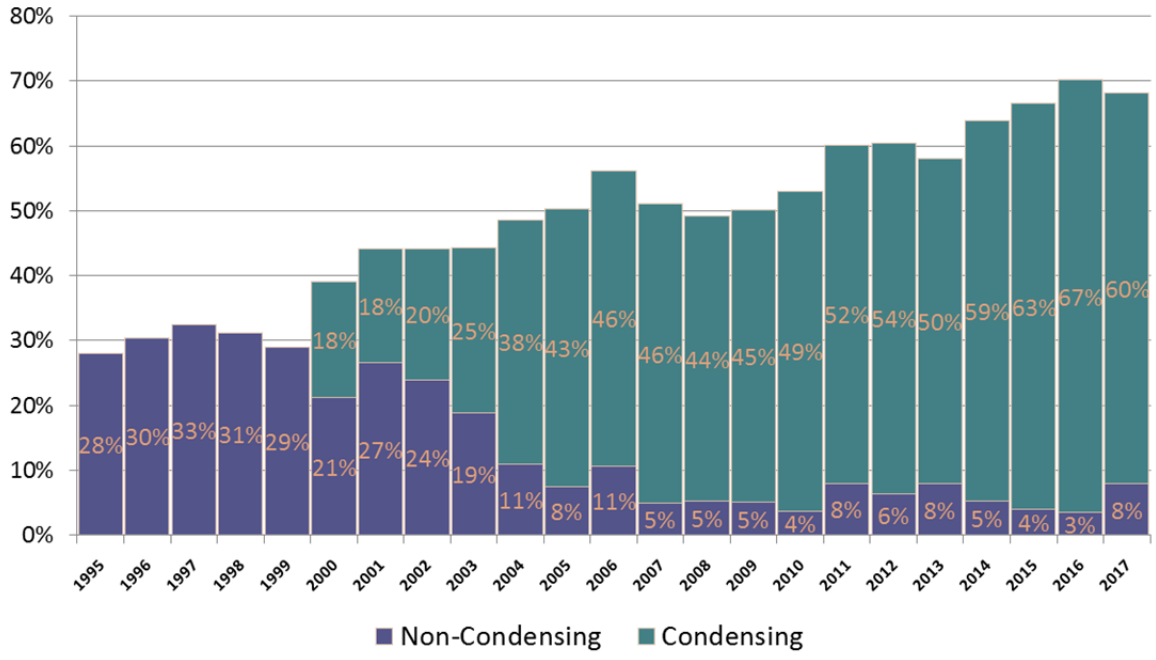

Figure 1.18 Installation Rates of Natural Gas Heating System Replacements

Figure 1.18 shows the transition to condensing (90+ efficiency) furnaces from non-condensing (80% efficiency) heating systems. Overall, 68% of dwellings with natural gas heating received a heating system replacement during 2017, with the vast majority of these being condensing units (60%).

AVERAGE COSTS OF MAJOR MEASURES BY AGENCY

Figures 1.19-1.23 show the agency-specific average costs for ceiling, wall, and floor/crawlspace insulation and furnace replacements for the overall program and for utility-funded measures only. These costs represent the total expenditures for these measures averaged over the number of households that received the measure (as opposed to an average across all households that were treated by the agency).

CEILING AND ATTIC INSULATION EXPENDITURES

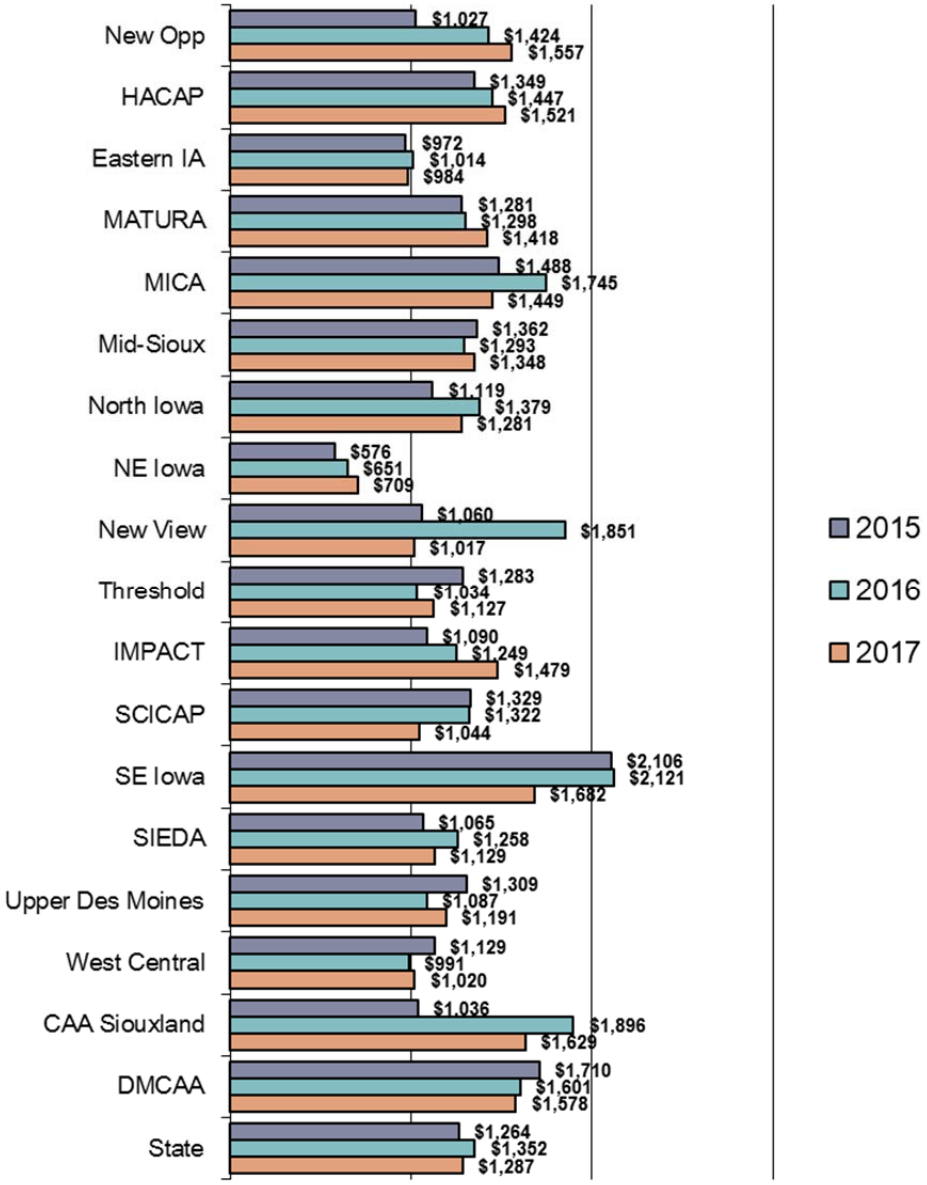

Figure 1.19a Average Program Expenditures on Ceiling Insulation by Agency

Figures 1.19a shows the average installed costs for ceiling and attic insulation (including cavity-fill blown attic insulation) for all expenditures. The statewide average cost for ceiling insulation was $1,287 in 2017.

SE Iowa and CAA Siouxland averaged $1,682 and $1,629 per unit. The lowest average spending was reported by Northeast Iowa, averaging $709.

Figure 1.19b shows the statewide average expenditure of utility funds on ceiling and attic insulation was $1,131. MATURA spent the most at $1,723, followed by DMCAA ($1,632). Northeast Iowa spent the least utility funds ($654) for ceiling and attic insulation.

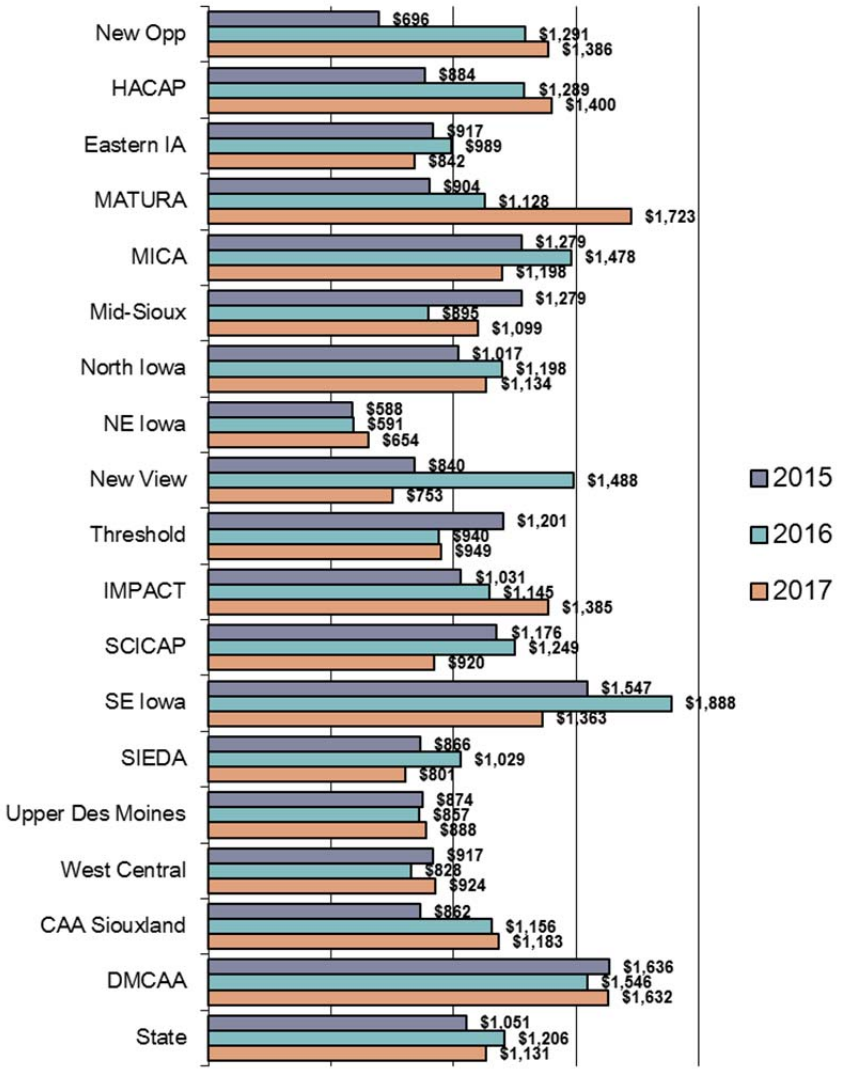

Figure 1.19b Average Utility Expenditures on Ceiling Insulation by Agency

WALL INSULATION EXPENDITURES

Figures 1.20a shows the average installed costs for wall insulation for all funding. The state average expenditure for wall insulation was $1,827 in CY 2017. North Iowa, HACAP, and Mid-Sioux each averaged more than $2,500. MATURA spent the least, averaging $295 per dwelling unit.

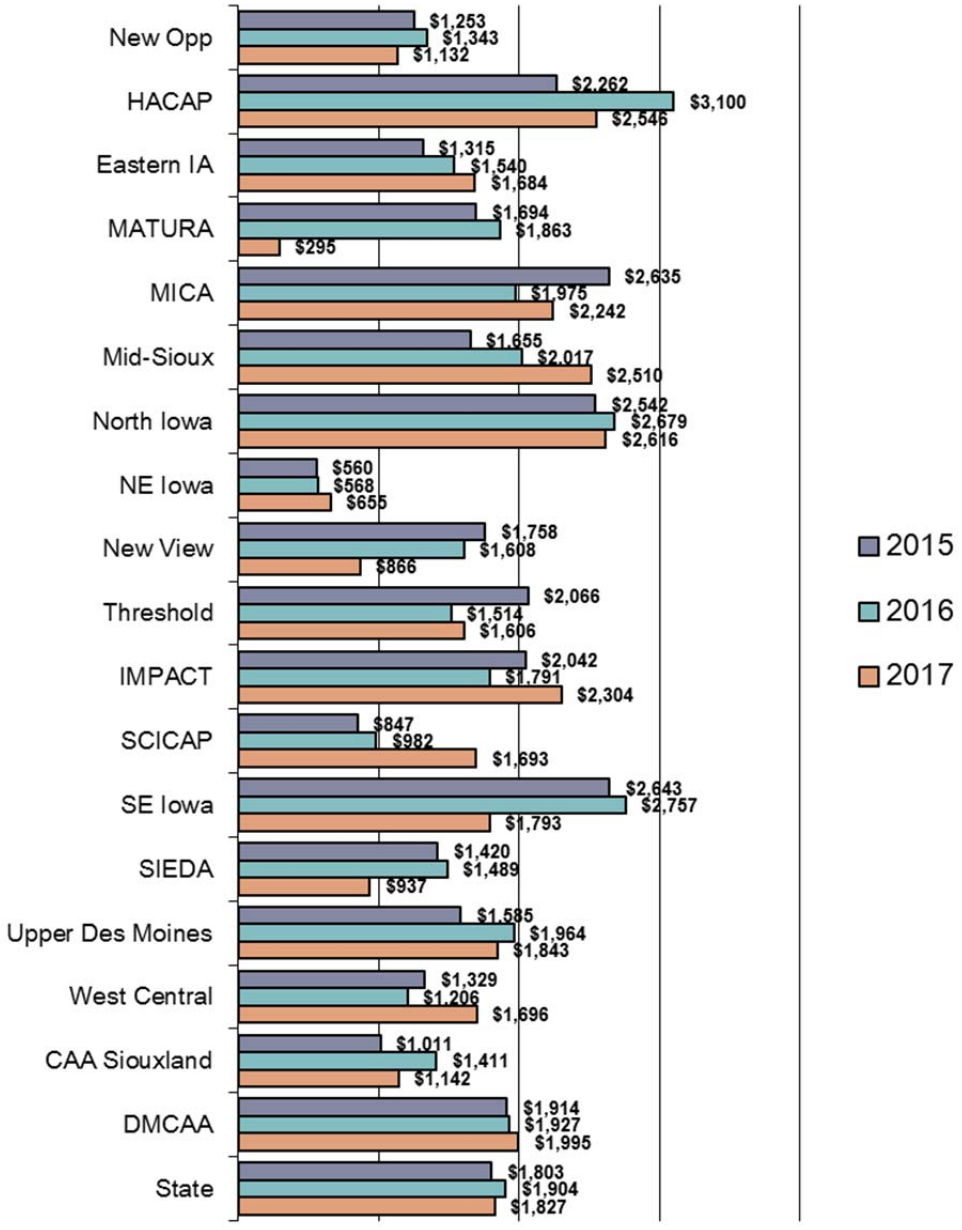

Figure 1.20a Average Program Expenditures on Wall Insulation by Agency

Figure 1.20b provides agency expenditures for utility-funded wall insulation. Statewide, the average expenditures for utility-funded wall insulation averaged $1,608 in CY 2017. IMPACT, HACAP, Mid-Sioux, and MATURA spent the most utility funds, averaging over $2,000; MATURA spent no utility funds for wall insulation in 2017.

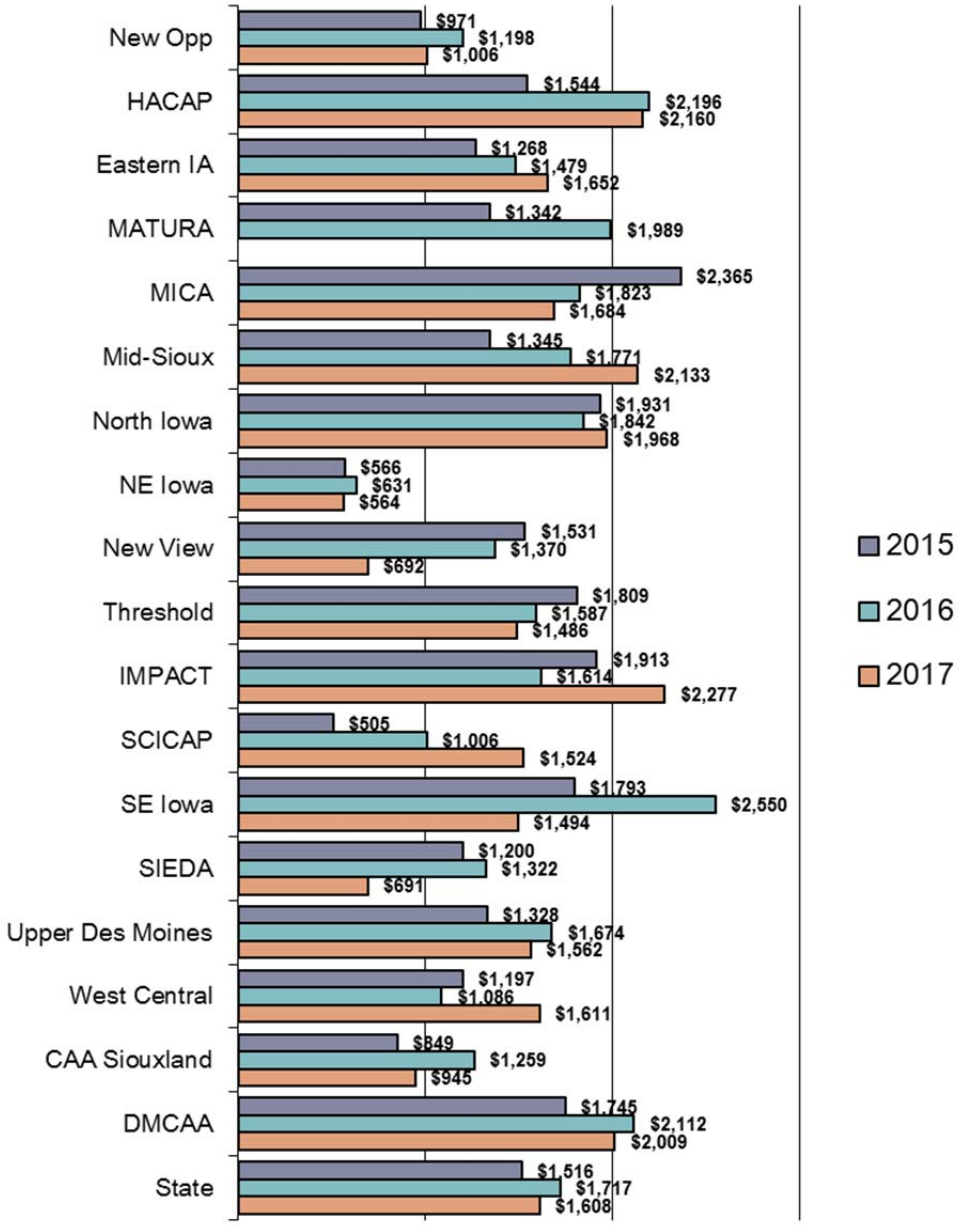

Figure 1.20b Average Utility Expenditures on Wall Insulation by Agency

FLOOR/CRAWLSPACE INSULATION

Figures 1.21a shows the average expenditures for floor/crawlspace insulation from all funding sources. Statewide, the cost for floor/crawlspace insulation averaged $643. CAA Siouxland and DMCAA spent the most, averaging over $1,000 per unit, while North Iowa spent less than $300.

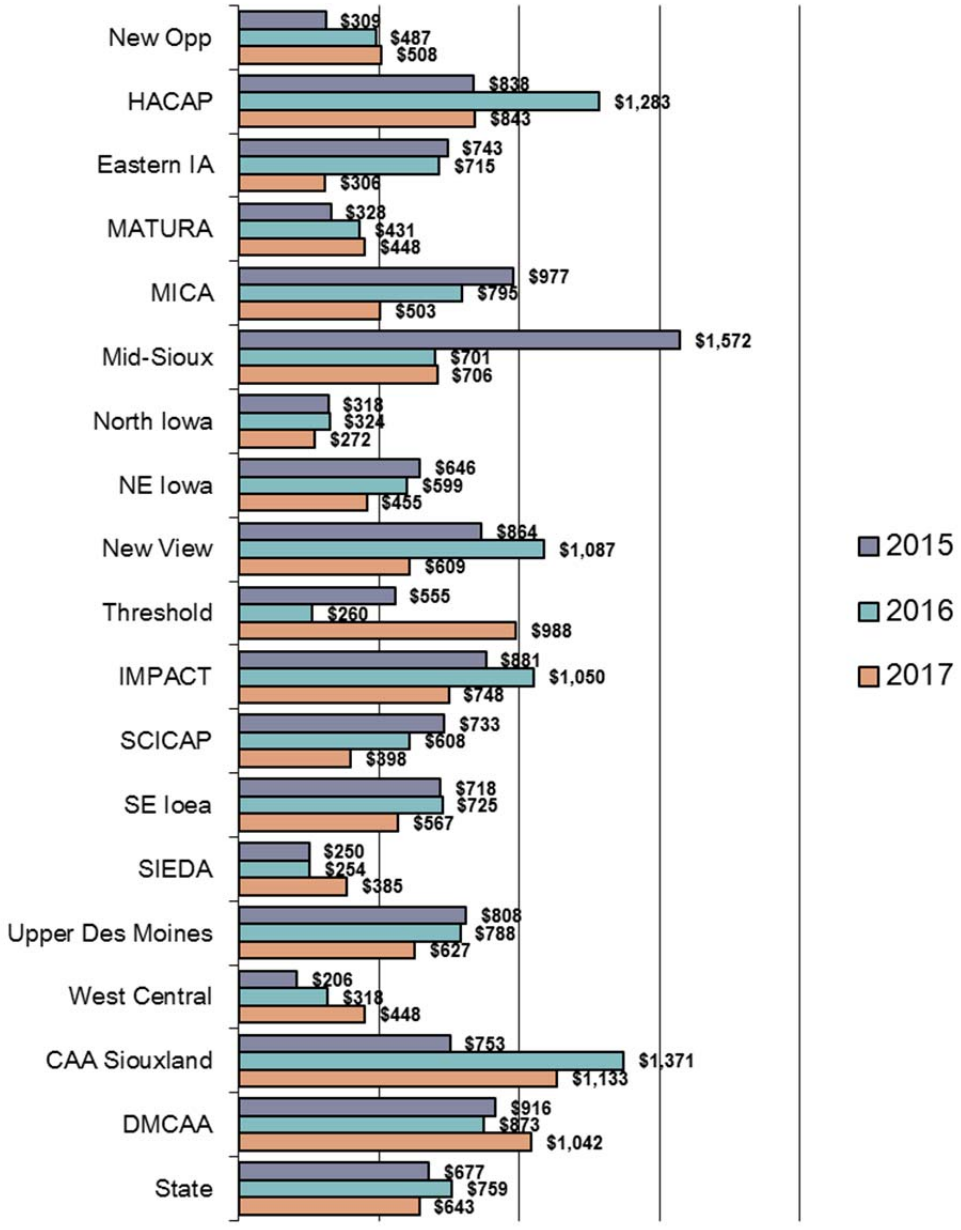

Figure 1.21a Average Program Expenditures on Floor/Crawlspace Insulation by Agency

The average expenditure of utility funds for floor/crawlspace insulation(Figure 1.21b) was $581. DMCAA and Siouxland spent over $1,000 while SIEDA, North Iowa, and Mid-Sioux spent less than $300.

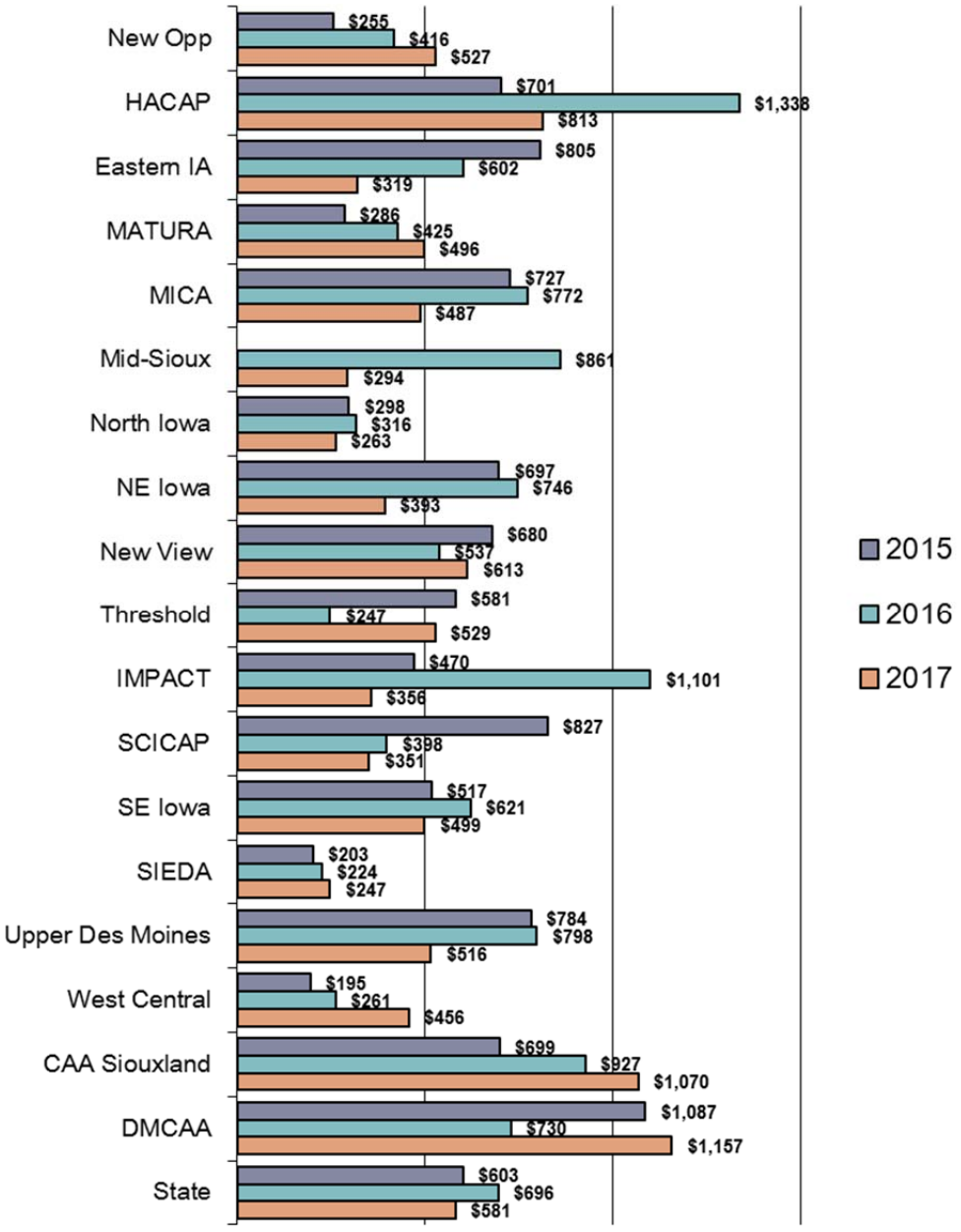

Figure 1.21b Average Utility Expenditures on Floor/Crawlspace Insulation by Agency

NON-ELECTRIC HEATING SYSTEM REPLACEMENT EXPENDITURES

Figures 1.22a shows the average expenditures for all non-electric heating system replacements from all funding sources. Statewide average heating system replacement costs were $2,986 in 2017. Three agencies reported average expenditures exceeding $4,000, including SCICAP ($4,705), Siouxland ($4,250), and West Central ($4,095). Three agencies averaged less than $2,300, including ($2,057), Threshold ($2,249), and DMCAA ($2,237).

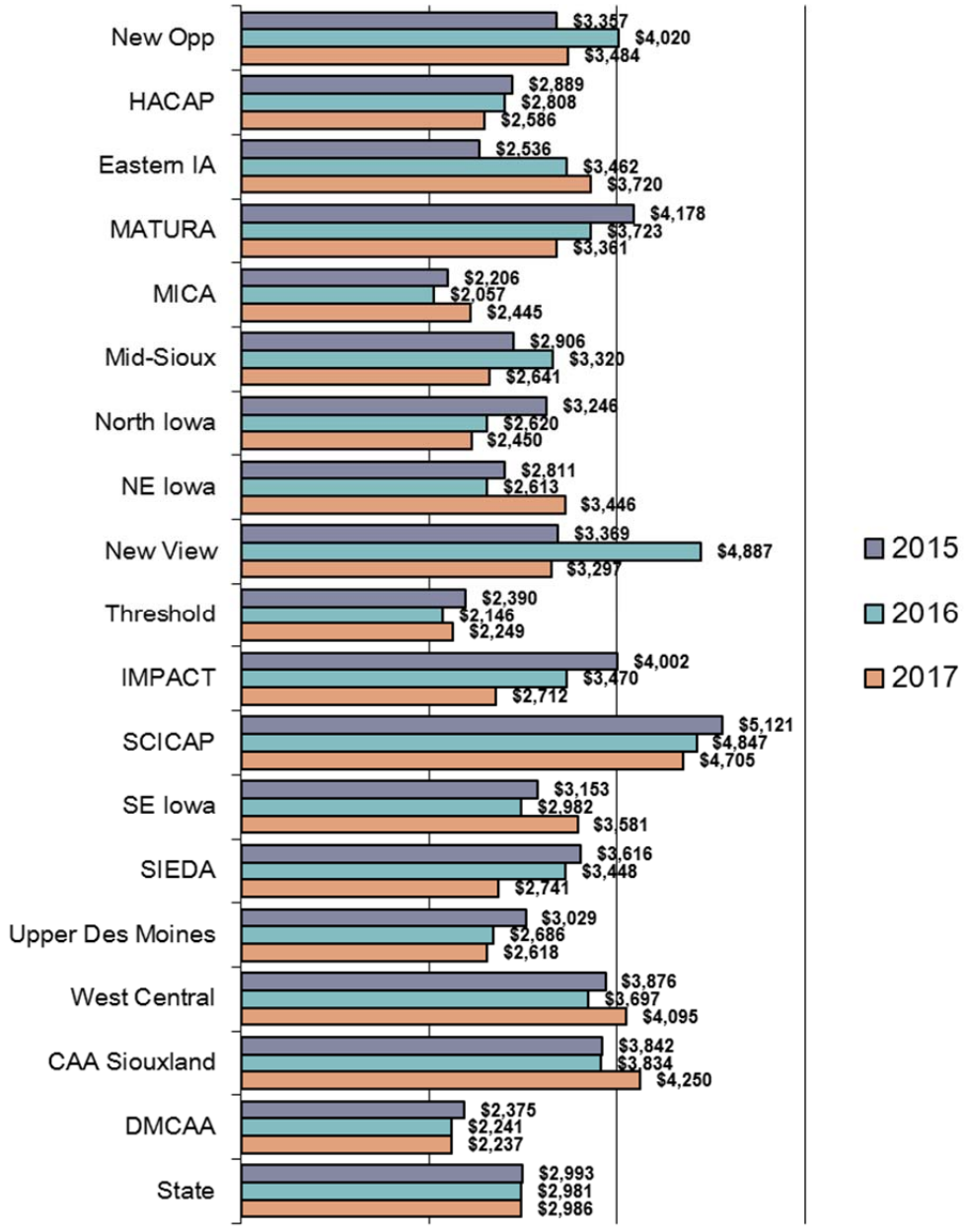

Figure 1.22a Average Program Expenditures on Heating System Replacements by Agency

Figure 1.22b shows the average utility funding for replacement heating systems of $2,458 statewide. SCICAP averaged the highest expenditure at $3,215, followed by West Central ($3,212) and MATURA ($3,050). DMCAA pent the least, averaging $1,917 per housing unit.

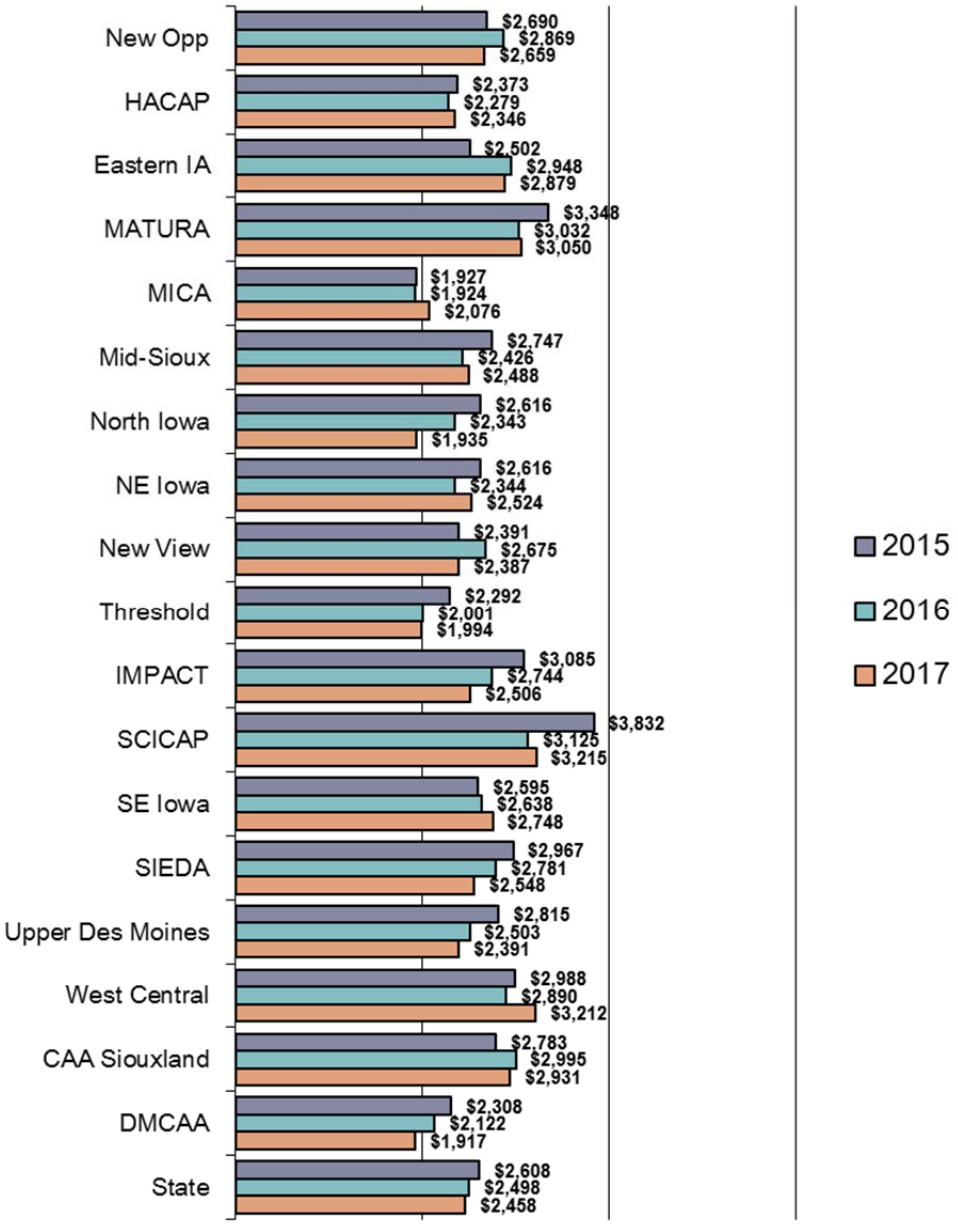

Figure 1.22b Average Utility Expenditures on Heating System Replacements by Agency

Section 4, Detailed Spending and Impact Profiles by Agency provides tables similar to those in Section 4 for each weatherization agency, for all measures installed.

Section 5, Detailed Spending and Impact Profiles by Agency for Utility Expenditures provides similar detail by agency, but is limited to measures funded by the utilities.

2. FUEL CONSUMPTION ANALYSIS

Savings were estimated for all clients based upon measures installed in each dwelling, using algorithms developed in prior studies of the Iowa low-income program. The fuel consumption analysis provides adjustment factors to the estimated impacts, with gas adjustments applied to estimates of natural gas, propane, and fuel oil heating impacts.

STUDY SAMPLE AND METHODOLOGY

Weatherization jobs completed from January 1, 2017 through December 31, 2017 comprised our treatment group gas treatment group. Jobs weatherized from October, 2016 through May, 2017 comprised the electricity treatment group.

We used a comparison group to adjust for non-weatherization program factors that affect fuel usage, including but not limited to fuel price shocks, naturally-occurring conservation, and participation in other energy programs. Our comparison group consisted of all LIHEAP clients of the SLICE utilities and who applied for energy assistance from October, 2017 through March, 2018. In order to assess a change in consumption for the comparison group, we established a pseudo-treatment period for each comparison group household by assigning the same period as that of a randomly selected household from the treatment group.

Estimated usage readings were combined with subsequent actual readings. Phone/postcard readings and final or corrected readings were considered actual readings. Reading codes not corresponding to actual readings were considered estimated.

The weatherization period was defined as beginning with the audit date and ending with the date the dwelling was reported as complete. We truncated the usage data to a period of no more than to 390 days prior to the beginning of the weatherization period, and up to 390 days following end of the weatherization period.

Fuel consumption was weather-normalized using weather data from the same ten weather zones (Figure 2.1). Our long-term normal weather datasets are comprised of the 28-year period ending in Dec, 2017.

The comparison group records were matched with treatment group records based upon normalized annual pre-weatherization consumption, housing type, heating fuel, and model components (heating and or/ cooling and/or baseload).

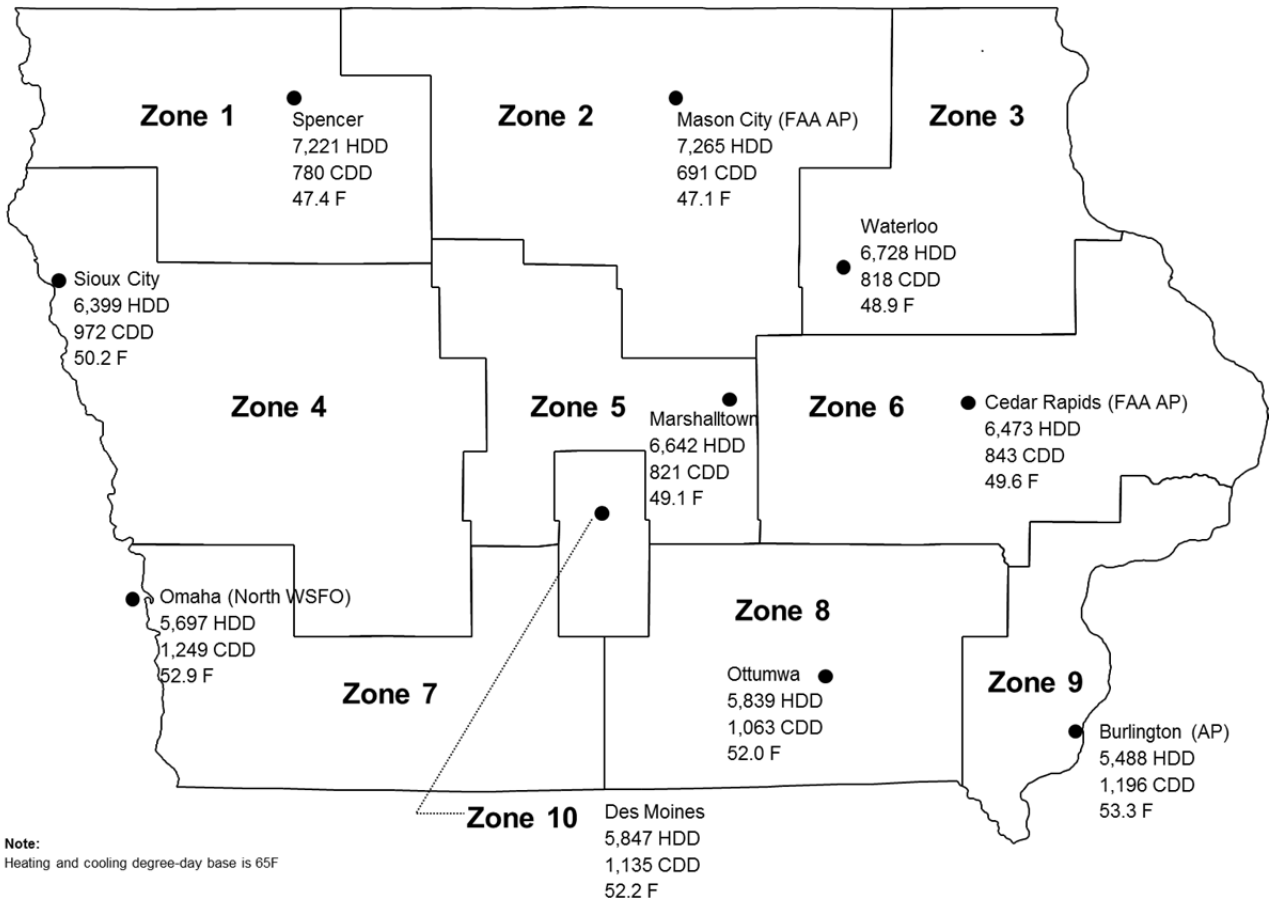

Figure 2.1 Weather zones used in the weather-normalization

MODEL SELECTION

We investigated impacts using five model specifications for each dwelling:

- Heating/Baseload (gas and electricity)
  - HB using floating point reference temperatures ranging between 40˚F to 70˚F
  - HBF using fixed reference temperatures of 62˚F for natural gas and 58˚F for electricity
- Cooling/Baseload (electricity only)
  - CB using floating point reference temperatures ranging between 60˚F to 72˚F
  - CBF using fixed reference temperatures of 68˚F
- Heating only (gas only)
  - HO using floating point reference temperatures ranging between 40˚F and 70˚F
  - HOF using fixed reference temperatures of 62˚F

- Heating/Cooling/Baseload (electricity only)
  - Heating floating point reference temperatures ranging between 40˚F and 70˚F
  - Cooling floating point reference temperatures ranging between 60˚F and 72˚F
  - HCF using fixed reference temperatures of 58˚F for heating and 68˚F for cooling
- BO Baseload (electricity and gas, but no gas models passed the selection process)
  - flat usage, requiring nine months of data.

Three levels of screens were used, including:

1) Insufficient usage history or usage characteristics
2) Poor model diagnostics
3) Poor model reliability.

SCREENS FOR POOR MODEL DIAGNOSTICS

Models were dropped if:

- the coefficient of variation of NAC exceeded 0.1
- negative values for adjusted r^2
- Gas: R^2 of at least 0.7, electricity: R^2 of at least 0.5

SCREENS FOR POOR MODEL RELIABILITY

Models were dropped if:

- the normalized annual heating consumption, heating slope, or baseload components were negative
- Minimal requirements for specific model types:
  - Heating models require usage during periods representing at least 50% of the annual heating days
  - Baseload models required 8.5 months of consumption
- Usage histories had insufficient data during heating and/or cooling seasons. Histories must have usage during periods of at least 50% of heating degree days (base 62 for gas, 58 for electricity heating models), and 50% of cooling degree days base 68 (electricity only)

Finally, we required that the normalized annual consumption was within 10% of the results for alternate model specifications where multiple models met other criteria.

ATTRITION ANALYSIS – GAS

We requested data for 1,215 weatherization client dwellings with gas heating and 70,196 LIHEAP client dwellings for our comparison group (also with gas heating). This request included dwellings weatherized in 2017.

ATTRITION RATES

Table 2.1 provides a breakout of the attrition rates of the natural gas billing data request, by state and utility.

The utilities returned useable data for 87% of the treatment client dwellings and 79% for the comparison group (LIHEAP) clients. Useable histories with sufficient pre- and post-weatherization data were available for 70% of the treatment group clients and 61% of the comparison group. Our final analytic dataset included 605 weatherization client dwellings and 34,911 comparison dwellings, representing 60% and 51% of the requested usage histories for the treatment and comparison groups, respectively.

Table 2.1 Gas Analysis Sample Attrition

		State		IPL		BHC		MAE	
		Trt	Cmpr	Trt	Cmpr	Trt	Cmpr	Trt	Cmpr
Return Rate	Requested	1,005	68,989	394	18,583	144	10,759	467	39,647
	Returned	872	54,545	372	17,865	131	9,906	369	26,774
	Percentage Returned	86.8%	79.1%	94.4%	96.1%	91.0%	92.1%	79.0%	67.5%
Useable Histories	Both Pre and Pst Cnt	698	41,971	263	10,444	100	7,502	335	24,025
	Both Pre and Pst Pct	69.5%	60.8%	66.8%	56.2%	69.4%	69.7%	71.7%	60.6%
Passed Model Diagnostics	Both Pre and Pst Cnt	642	36,814	235	8,755	87	6,428	320	21,631
	Both Pre and Pst Pct	63.9%	53.4%	59.6%	47.1%	60.4%	59.7%	68.5%	54.6%
Passed Reliability Screens	Both Pre and Pst Cnt	605	34,911	222	8,553	86	6,386	297	19,972
	Both Pre and Pst Pct	60.2%	50.6%	56.3%	46.0%	59.7%	59.4%	63.6%	50.4%

Table 2.2 provides the attrition analysis broken out by housing type. Overall, 62% of the requested account data for weatherized single family site-built dwellings, 55% of mobile homes, and 33% of the few multi-family dwellings weatherized by the program passed all analytic screens.

Table 2.2 Gas Attrition by Housing Type

		State		IPL		BHC		MAE	
		Trt	Cmpr	Trt	Cmpr	Trt	Cmpr	Trt	Cmpr
Single Family Detached Framed Dwellings									
Requested		899	54,361	367	15,150	130	8,824	402	30,387
Returned		792	44,843	353	14,779	120	8,140	319	21,924
Percentage Returned		88.1%	82.5%	96.2%	97.6%	92.3%	92.2%	79.4%	72.1%
Passed Model	Both Pre and Pst Cnt	587	31,344	224	7,592	81	5,456	282	18,296
Diagnostics	Both Pre and Pst Pct	65.3%	57.7%	61.0%	50.1%	62.3%	61.8%	70.1%	60.2%
Passed Reliability	Both Pre and Pst Cnt	554	29,723	211	7,411	80	5,427	263	16,885
Screens	Both Pre and Pst Pct	61.6%	54.7%	57.5%	48.9%	61.5%	61.5%	65.4%	55.6%
Mobile Homes									
Requested		73	3,526	14	1,098	9	504	50	1,924
Returned		61	2,878	14	1,068	7	456	40	1,354
Percentage Returned		83.6%	81.6%	100.0%	97.3%	77.8%	90.5%	80.0%	70.4%
Passed Model	Both Pre and Pst Cnt	43	1,859	10	490	4	301	29	1,068
Diagnostics	Both Pre and Pst Pct	58.9%	52.7%	71.4%	44.6%	44.4%	59.7%	58.0%	55.5%
Passed Reliability	Both Pre and Pst Cnt	40	1,771	10	487	4	298	26	986
Screens	Both Pre and Pst Pct	54.8%	50.2%	71.4%	44.4%	44.4%	59.1%	52.0%	51.2%
Multi-Family									
Requested		33	11,102	13	2,335	5	1,431	15	7,336
Returned		19	6,824	5	2,018	4	1,310	10	3,496
Percentage Returned		57.6%	61.5%	38.5%	86.4%	80.0%	91.5%	66.7%	47.7%
Passed Model	Both Pre and Pst Cnt	12	3,611	1	673	2	671	9	2,267
Diagnostics	Both Pre and Pst Pct	36.4%	32.5%	7.7%	28.8%	40.0%	46.9%	60.0%	30.9%
Passed Reliability	Both Pre and Pst Cnt	11	3,417	1	655	2	661	8	2,101
Screens	Both Pre and Pst Pct	33.3%	30.8%	7.7%	28.1%	40.0%	46.2%	53.3%	28.6%

OUTLIERS

An outlier screen was then applied to models with reliable pre- and post-usage data using the Interquartile Rule for Outliers (Tukey Fence). Cases where the percentage savings were greater or less than 1.5 times the interquartile range were dropped.

The outlier screen dropped approximately 3% of treatment group observations and 14% of comparison group cases with pre and post savings models.

GAS IMPACT ANALYSIS

Our results are summarized in Table 2.3. The agency-specific results are summarized on each line, with the overall program impacts summarized on the bottom line. The column labeled 'Population' provides the count of all dwellings with natural gas heating that were treated by the weatherization program during the calendar year. The treatment group columns indicate the number of dwellings in our screened analysis dataset ('n'), the weather-normalized annual consumption prior to weatherization ('Baseline' consumption), the 90% confidence interval on the baseline consumption (interpreted as the variation from baseline for which we are 90% certain that the true mean value of the baseline consumption falls within), the unadjusted savings ('Savings') and the 90% confidence interval on the savings.

The next section of Table 3.2 provides results for the matched comparison group. To the right if those results are the net savings by agency, including average savings and percentage savings.

The rightmost section summarizes the average estimated savings which were developed using dwelling-specific measure data as well as a comparison between the estimated and observed savings, termed the realization rate. The realization rate is defined as the ratio of observed savings to estimated savings. Our final agency-specific results are developed by applying this ratio to the estimated savings for all dwellings with non-electric heating.

The overall adjusted savings (reported under the Net Savings column) averaged 247 therms for single family site-built dwellings. The 90% confidence interval was 17 therms, which is suggestive that 90% certain that the true population mean savings falls in the approximate range of 230 and 264 therms. The overall mean percent savings was 24.5%, with a 1.3% confidence interval.

Net gas savings for mobile homes averaged 204 therms ±59 therms. The overall percentage savings for mobile homes was 21.7%, with a 5.1% confidence interval.

We did not have enough data to provide reliable results for the few multi-family dwellings weatherized.

Table 2.3 Gas Fuel Consumption Analysis Results

	Population (with gas heating source)	Treatment Group					Comparison Group					Net Savings (therms)	90% CI	Percent Savings (%)	90% CI	Estimated Savings	90% CI	Realization Rate (%)
		n	Baseline Cons. (therms)	90% CI	Savings (therms)	90% CI	n	Baseline Cons. (therms)	90% CI	Savings (therms)	90% CI							
Single Family Detached Framed Dwelling Results																		
New Opportunities	36	19	1,352	173	521	148	107	1,338	170	64	32	457	138	33.8%	6.9%	365	65	125.2%
HACAP	90	41	1,127	78	269	56	341	1,118	77	5	33	264	60	23.5%	4.6%	274	30	96.6%
Eastern IA	103	78	896	60	206	33	505	896	59	-16	17	223	33	24.8%	3.4%	307	33	72.5%
MATURA	11	5	1,207	268	369	265	55	1,176	209	10	85	358	198	29.7%	15.3%	201	110	178.6%
MICA	79	60	988	89	269	57	371	991	87	-13	17	283	62	28.6%	4.8%	268	31	105.6%
Mid-Sioux	32	16	956	81	217	59	158	948	80	52	29	164	71	17.1%	7.4%	231	47	71.0%
North Iowa	79	53	1,008	73	328	60	400	1,000	73	17	20	311	61	30.8%	4.2%	366	37	84.9%
NE Iowa	57	23	953	125	131	59	218	957	120	30	19	99	62	10.4%	5.9%	168	46	59.1%
New View	19	7	974	232	181	194	97	963	206	7	16	174	183	17.8%	18.7%	269	92	64.6%
Threshold	71	37	1,173	92	312	46	319	1,169	91	57	26	255	49	21.7%	3.8%	366	52	69.5%
IMPACT	28	12	981	167	223	92	204	993	150	2	29	220	99	22.5%	8.1%	290	48	75.9%
SCICAP	15	7	823	188	91	190	55	849	172	20	24	72	158	8.7%	22.4%	223	56	32.1%
SE Iowa	50	15	1,168	134	322	139	160	1,165	127	15	23	307	134	26.3%	10.1%	405	80	75.8%
SIEDA	29	17	789	148	199	80	165	797	140	-8	24	209	80	26.5%	6.1%	249	51	83.8%
Upper Des Moines	72	49	839	61	158	34	396	839	62	13	19	145	30	17.3%	3.3%	231	29	62.9%
West Central	37	19	796	142	232	102	327	800	137	2	18	230	97	28.8%	7.6%	247	47	93.1%
CAA Siouxland	19	11	1,169	147	217	109	199	1,178	140	73	26	146	100	12.5%	9.0%	219	49	66.4%
Polk County	115	75	1,114	65	325	44	505	1,114	64	27	20	297	47	26.7%	3.3%	308	19	96.4%
Overall	942	544	1,009	25	261	17	4,582	1,008	25	14	6	247	17	24.5%	1.3%	291	11	84.8%
Mobile Home Results (entire state)																		
Overall	75	38	942	62	182	60	148	934	64	-21	21	204	59	21.7%	5.1%	150	21	136.3%

SAVINGS WITH RESPECT TO PRE-WEATHERIZATION USAGE

We plotted the relationship between the normalized annual consumption and the net savings for single family site-built dwellings (Figure 2.2). The upward trending regression line indicates the population-weighted fit between NAC and savings, and demonstrates savings in relation to baseline consumption. The statewide average is shown at the center, labeled 'State'.

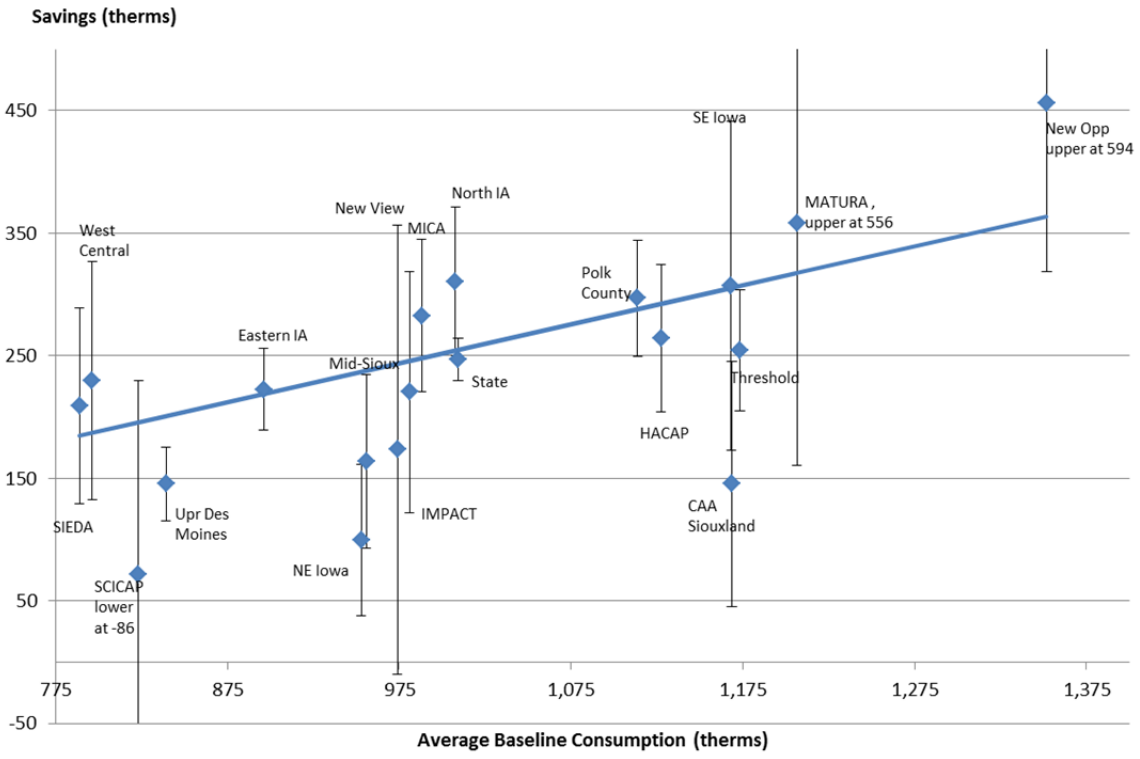

Figure 2.2 Savings in relation to the pre-weatherization normalized annual consumption (single family site-built dwellings).

The 90% confidence intervals are extremely wide for several agencies, including SCICAP, New View, MATURA, and New Opportunities. The high variation in savings can be attributed to various factors including wide variations in housing stock, agency practices, and lower sample sizes. These factors are becoming a hindrance to assessing agency-specific results in recent years as fewer numbers of homes weatherized annually.

The 90% confidence intervals of the average adjusted savings for each agency are shown in the error bars. Agencies with confidence intervals overlapping the regression line produced savings consistent with the state overall for dwellings relative to the baseline consumption for those agencies. The most significant underperforming agency was Upper Des Moines. This suggests that significant differently different housing stock, weatherization procedures, or other factors

resulted in comparatively lower savings for these agencies relative to pre-weatherization consumption.

In addition, agencies in which the confidence intervals range extend into or above the confidence interval for the state overall had similar or higher savings relative to the state. All agencies achieved this except Upper Des Moines.

Figure 2.3 provides another view of the savings with respect to baseline consumption. The plot shows a point for the savings for dwellings in our billing dataset, a regression line through all points, and an assessment of the percentage savings as determined by this regression line (shown by the curved line). The chart provides confirmation that absolute savings increase as higher-consumption dwellings are targeted. Percent savings increases significantly as baseline consumption increases at the lower range, and less so at higher ranges as the curve flattens out.

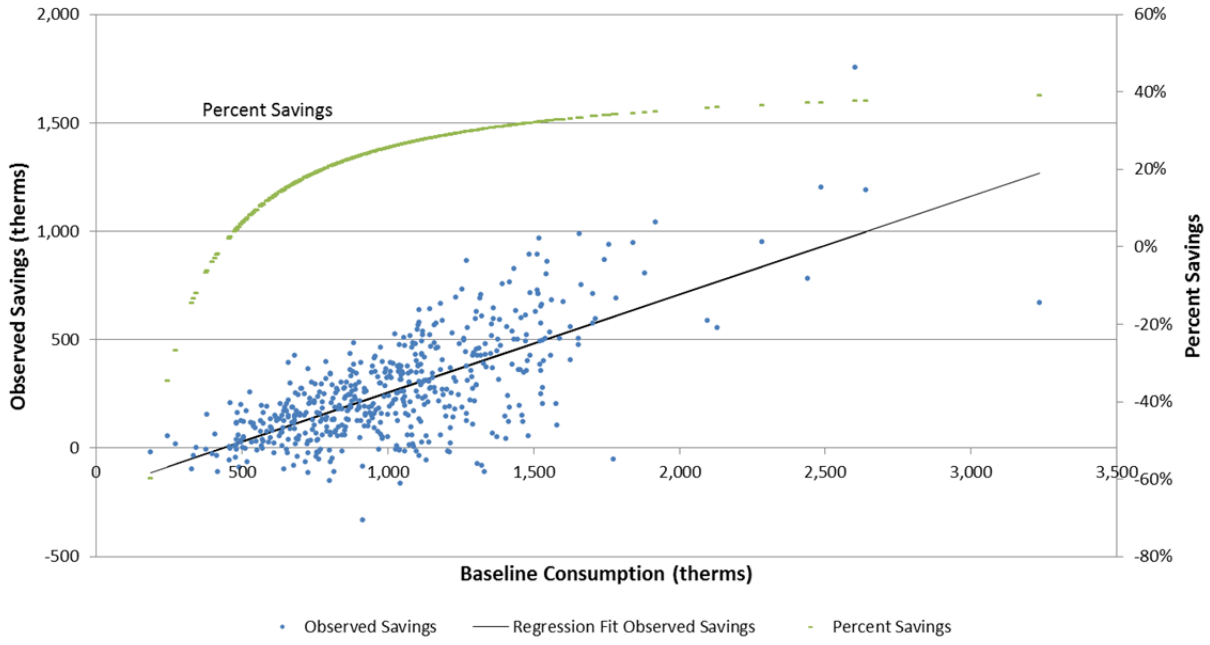

Figure 2.3. Relationship between baseline consumption, savings, and percentage savings

TRENDS IN BASELINE CONSUMPTION AND ENERGY SAVINGS

Figure 2.4 provides a yearly summary of baseline consumption, savings, and percentage savings for billing analyses conducted since the calendar year 1998 program. The treatment group normalized annual consumption approached 1,394 therms per site-built dwelling in the CY 1998 program. Baseline consumption has declined by 28% since then, and averaged 1,009 therms in CY 2017. Generally speaking, net savings has declined through 2010 and has increased slightly since then. Overall percentage savings has increased through the period, from around 23% to slightly more than 24.5% in the 2016 program.

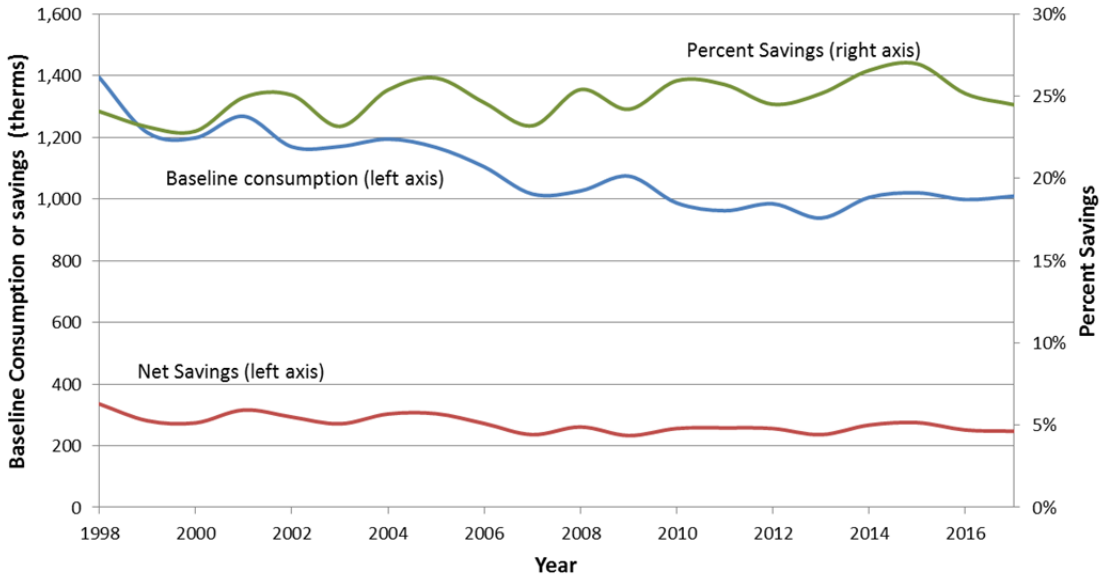

Figure 2.4 Annual Baseline Consumption, Savings, and Percentage Savings

ATTRITION ANALYSIS – ELECTRICITY

We requested data for 839 weatherization client dwellings and 87,501 LIHEAP client dwellings for our comparison group. The electricity analysis was restricted to home weatherized from Oct, 2017 through May, 2017 to allow for up to a year of pre and post-weatherization periods.

Overall we had 520 treatment and 45,486 comparison group homes which passed all screens.

Table 2.5 Electricity Analysis Sample Attrition

		State		IPL		MAE	
		Trt	Cmpr	Trt	Cmpr	Trt	Cmpr
Return Rate	Requested	839	87,501	469	40,547	370	46,925
	Returned	738	73,269	442	39,745	296	33,524
	Percentage Returned	88.0%	83.7%	94.2%	98.0%	80.0%	71.4%
Useable Histories	Both Pre and Pst Cnt	601	57,768	332	24,904	269	32,848
	Both Pre and Pst Pct	71.6%	66.0%	70.8%	61.4%	72.7%	70.0%
Passed Model Diagnostics	Both Pre and Pst Cnt	539	47,996	290	21,363	249	26,625
	Both Pre and Pst Pct	64.2%	54.9%	61.8%	52.7%	67.3%	56.7%
Passed Reliability Screens	Both Pre and Pst Cnt	520	45,486	283	21,037	237	24,444
	Both Pre and Pst Pct	62.0%	52.0%	60.3%	51.9%	64.1%	52.1%

Table 2.6 provides the attrition analysis broken out by housing type. Most of the cases with electricity results were for weatherized single family detached frame dwellings, totaling 479 cases. Twenty-nine mobile homes and twelve multi-family units weatherized by the program passed all screens.

Table 2.6 Electricity Attrition by Housing Type

		State		IPL		MAE	
		Trt	Cmpr	Trt	Cmpr	Trt	Cmpr
Single Family Detached Framed Dwellings							
Requested		744	60,891	403	28,759	341	32,109
Returned		665	52,329	389	28,167	276	24,162
Percentage Returned		89.4%	85.9%	96.5%	97.9%	80.9%	75.2%
Passed Model	Both Pre and Pst Cnt	496	35,910	263	16,177	233	19,728
Diagnostics	Both Pre and Pst Pct	66.7%	59.0%	65.3%	56.3%	68.3%	61.4%
Passed Reliability	Both Pre and Pst Cnt	479	34,136	257	15,922	222	18,210
Screens	Both Pre and Pst Pct	64.4%	56.1%	63.8%	55.4%	65.1%	56.7%
Mobile Homes							
Requested		52	3,376	31	1,550	21	1,825
Returned		45	2,814	30	1,513	15	1,301
Percentage Returned		86.5%	83.4%	96.8%	97.6%	71.4%	71.3%
Passed Model	Both Pre and Pst Cnt	31	1,851	19	786	12	1,065
Diagnostics	Both Pre and Pst Pct	59.6%	54.8%	61.3%	50.7%	57.1%	58.4%
Passed Reliability	Both Pre and Pst Cnt	29	1,750	18	771	11	979
Screens	Both Pre and Pst Pct	55.8%	51.8%	58.1%	49.7%	52.4%	53.6%
Multi-Family							
Requested		43	23,234	35	10,238	8	12,991
Returned		28	18,126	23	10,065	5	8,061
Percentage Returned		65.1%	78.0%	65.7%	98.3%	62.5%	62.1%
Passed Model	Both Pre and Pst Cnt	12	10,235	8	4,400	4	5,832
Diagnostics	Both Pre and Pst Pct	27.9%	44.1%	22.9%	43.0%	50.0%	44.9%
Passed Reliability	Both Pre and Pst Cnt	12	9,600	8	4,344	4	5,255
Screens	Both Pre and Pst Pct	27.9%	41.3%	22.9%	42.4%	50.0%	40.5%

OUTLIERS

An outlier screen was then applied to models with reliable pre and post usage data using the Interquartile Rule for Outliers (Tukey Fence). Cases where the percentage savings were greater or less than 1.5 times the interquartile range were dropped.

The outlier screen dropped approximately 6% of treatment group observations and 13% of comparison group cases with pre and post savings models.

ELECTRICITY IMPACT ANALYSIS

We developed state-level electricity savings results for two groups, those with non-electric space heat and for those with electric space heat. Our results are summarized in Table 2.7.

Table 2.7 Electricity Fuel Consumption Analysis Results (State Level Results)

	Population	Treatment Group					Comparison Group					Net		Percent		Estimated		
	n	n	Baseline Cons. (kWh)	90% CI	Savings (kWh)	90% CI	n	Baseline Cons. (kWh)	90% CI	Savings (kWh)	90% CI	Savings (kWh)	90% CI	Savings (%)	90% CI	Savings (kWh)	90% CI	Realization Rate (%)
Electric Savings for Dwellings with Non-Electric Space Heat																		
Overall	932	455	10,368	389	967	195	3,280	10,002	390	387	128	577	211	4.8%	1.8%	515	23	111.9%
Electric Savings for Dwellings with Electric Space Heat																		
Overall	71	35	22,472	2,586	3,298	1,575	338	22,364	2,544	372	492	2,979	1,592	9.4%	6.8%	2,136	494	139.5%

Dwellings with non-electric space heat averaged 577 kWh net savings from lighting, refrigerators and freezers, water heating, and cooling measures. The average net savings for dwellings with electric heat averaged 2,979 kWh per dwelling.

COMPARISON OF SAMPLE AND OVERALL PROGRAM POPULATIONS

Measure-level savings are estimated for all weatherization clients. These are based upon the actual installed quantities and measure type (e.g., r-value and amount of insulation installed) and measured reductions in the air leakage rate. Consequently the dwelling-specific estimate savings provide a good basis of comparison between the sample and overall population. Table 2.8 provides a comparison of the estimated savings for the population and billing analysis sample for site-built single family homes and mobile homes.

Table 2.8 Estimated Savings for the Population and Billing Analysis Sample – Gas Heated Dwellings

	Natural Gas				Electricity			
	Population Est Savings (therms)	Count	Sample Est Savings (therms)	Count	Population Est Savings (kWh)	Count	Sample Est Savings (kWh)	Count
Site-Built Single Family								
Overall	288	942	291	544	533	436	545	218
New Opportunities	343	36	365	19	600	10	621	8
HACAP	263	90	274	41	505	31	552	21
Eastern IA	306	103	307	78	508	52	463	30
MATURA	153	11	201	5	217	6	238	2
MICA	268	79	268	60	465	45	480	25
Mid-Sioux	237	32	231	16	618	9	582	5
North Iowa	367	79	366	53	771	32	782	18
NE Iowa	179	57	168	23	352	35	349	15
New View	276	19	269	7	898	7	707	1
Threshold	331	71	366	37	399	37	442	20
IMPACT	266	28	290	12	432	9	559	2
SCICAP	251	15	223	7	345	7	279	2
SE Iowa	416	50	405	15	677	25	677	12
SIEDA	265	29	249	17	550	27	585	7
Upper Des Moines	228	72	231	49	525	34	531	16
West Central	237	37	247	19	496	21	469	11
CAA Siouxland	264	19	219	11	1,031	4	1,687	2
Polk County	310	115	308	75	618	45	632	21
Mobile Home								
Overall	150	75	150	38	325	65	311	30
Multi-Family								
Overall	228	37	252	6	532	337	516	203

The gas estimated savings for single family homes statewide were similar between the population (288 therms) and sample (291 therms). There is a little more variability between the population and sample at the agency levels though most compared to within 10%. The estimated savings for the mobile home sample was nearly the same as the population overall as well (150 therms in each case). The population and estimated gas savings were also close for multi-family, at 228 and 252 therms, respectively.

Estimated electricity savings shown in Table 2.8 are for housing units heated with natural gas heat. The estimated electricity savings for single family homes were also similar for the state overall, with 533 kWH for the population and 545 kWh for the sample. The estimated electricity savings for the mobile homes in the billing analysis sample also was within 4% of the population.

It's important to recognize that differences in estimated savings between the sample and population don't directly affect the adjustment factors that are applied to the estimated savings. The adjustment factors are the percentage difference between the estimated and observed savings *of the sample*. For example, if the observed sample impacts are 10% greater than the sample estimated impacts, then a 10% adjustment is applied to all houses. We need only be concerned if there are large differences between the estimated savings of the sample and the population, and the above table indicates that there are no significant differences.

Table 2.9 provides a similar comparison for the electricity billing analysis. The first line shows nearly identical estimates of savings for the population and sample in units with non-electric heat (propane, fuel oil, natural gas, wood, etc.), at 516 kWh and 515 kWh respectively. The population and estimated savings for units heating with electricity varied by approximately 10%, which is reasonable given the few units that heat with electricity.

Table 2.9 Estimated Savings for the Population and Billing Analysis Sample - Electricity

	Population		Sample	
	Est Savings (kWh)	Count	Est Savings (kWh)	Count
Overall, non-electric ht	516	838	515	455
Overall, electric heat	1,924	63	2,136	35

3. DETAILED SPENDING AND IMPACT PROFILES BY FUNDING ENTITY

This section provides tables of spending and impacts for the utilities, the state, and the overall program. The tables are designed to provide information to meet the filing requirements for cost recovery.

The summaries of impacts for state and utility funding are similar in format to those provided in the earlier SLICE reports.

We show a second table for each of the utilities in this report. These tables show the combined impacts of electricity and natural gas measures from all funding sources. These tables should prove useful for the energy and demand planning departments at the utilities to account for the aggregate impacts of the low-income program, and not just the impacts funded by a specific utility.

Combined State and Utility

Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: **$16,881,496**

Utility Administration Expenditures: **$260,580**

Total Labor and Material Expenditures: **$16,620,915**

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Dwellings with kWh Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Total Efficiency Measures	**1,255**	**1,255**	**1,055**	**104**	**14**	**2**	**1,252**	**1,255**	**9,115,286**	**278.3**		**273.1**		**986,992**	**2,616**	**252,720**	**28,672**	**1,932**	**35**	**7,263**	**0.222**		**0.218**		**786**	**2.48**	**240**	**276**	**138**	**17**
Total Shell & Htg. Sys. Repl	1,255	1,255	1,055	104	14	2	1,228	1,254	7,584,254	239.7	269,088	216.9	332,373	601,461	2,459	225,191	27,313	1,932	35	6,043	0.195	219	0.173	265	479	2.33	213	263	138	17
Total Shell Measures	1,254	1,254	1,055	104	14	2	1,228	1,253	5,090,864	239.7	269,088	213.7	327,601	596,689	1,475	135,209	14,533	1,293	25	4,060	0.195	219	0.171	261	476	1.40	128	140	92	12
Wall Insul.	739	668	642	59	9	0	666	29	1,350,475	90.6	109,261	24.6	37,783	147,044	509	46,663	4,771	372	0	1,827	0.136	164	0.847	1,303	220	0.79	73	81	41	-
Open Blown Ceiling Insul	1,003	928	845	82	11	2	923	63	795,012	90.0	108,567	75.5	115,469	224,036	434	39,751	4,006	494	7	793	0.098	118	1.198	1,833	241	0.51	47	49	45	4
Cavity Fill Insul	325	254	288	21	3	0	252	13	260,783	12.7	15,324	5.8	9,012	24,335	136	12,463	1,174	93	0	802	0.050	61	0.448	693	96	0.47	43	56	31	-
Sloped Attic Insul	341	300	299	25	4	1	299	12	183,064	15.9	19,165	6.0	9,115	28,281	120	11,095	1,017	101	6	537	0.053	64	0.501	760	94	0.40	37	41	25	6
Kneewall Insul	293	249	257	21	2	1	248	12	128,698	5.9	7,166	4.5	6,890	14,056	41	3,764	562	15	3	439	0.024	29	0.374	574	56	0.16	15	27	8	3
Infil. Reduction	1,244	1,152	1,048	103	14	2	1,147	77	1,045,485	18.0	21,691	13.5	20,615	42,306	183	16,743	1,898	119	5	840	0.016	19	0.175	268	37	0.18	16	18	8	2
Found./Crawl. Insul	508	165	420	49	8	2	153	29	326,441	9.5	11,436	8.1	12,295	23,731	75	6,867	1,038	89	4	643	0.062	75	0.280	424	144	0.18	16	21	11	2
Bandjoist Insul.	491	37	383	62	9	0	-	37	101,910	0.0	0	5.8	8,868	8,868	29	2,709	541	40	0	208	0.000	0	0.156	240	240	0.08	7	9	4	-
Furnace Blower Fan[1]	1,175	1,159	1,055	104	14	2	-	1,159	0	0.0	0	100.6	154,437	154,437	(6)	(577)	(54)	(6)	(0)	0	0.000	0	0.087	133	133	(0.01)	(1)	(1)	(0)	(0)
Exhaust Ventilation[2]	948	948	807	73	6	1	948	948	898,996	-2.9	(23,523)	(30.5)	(46,882)	(70,405)	(46)	(4,269)	(421)	(24)	(1)	948	-0.003	(25)	(0.032)	(49)	(74)	(0.06)	(5)	(6)	(4)	(1)
Total Heating System Repl	835	30	717	79	8	1	-	30	2,493,389	0.0	0	3.1	4,772	4,772	984	89,981	12,781	639	10	2,986	0.000	0	0.104	159	159	1.37	125	162	80	10
Condensing Htg Sys Rep	756	0	673	76	6	1	-	-	2,168,346	0.0	0	0.0	0	0	870	79,444	11,122	518	10	2,868	-	-	-	-	-	1.29	118	146	86	10
Non-Cond Htg Sys Repl	99	0	88	9	2	0	-	-	181,203	0.0	0	0.0	0	0	114	10,538	1,659	121	0	1,830	-	-	-	-	-	1.29	120	184	60	-
Electric Htg Sys Repl	20	20	0	0	0	0	-	20	73,915	0.0	0	2.0	2,980	2,980	0	0	0	0	0	3,696	0.000	0	0.098	149	149	-	-	-	-	-
Heat Pump Repl	11	11	0	0	0	0	-	11	69,924	0.0	0	1.2	1,793	1,793	0	0	0	0	0	6,357	0.000	0	0.106	163	163	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-

	Number of Measures Installed by Fuel Type: Total	Electric	Gas	Propane	Fuel Oil	Other		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Water Heating	1,213	338	833	42	0	0	2,653	565	2,010	78	0	0	1,309,164	0.0	0.7	41,780	156.7	27,529	1,358	0	0	1,079	0.000	0.002	124	0.188	33	32	-	-
Temp. Reduct.	7	6	1	0	0	0	7	6	1	0	0	0	0	0.0	0.0	720	0.0	7	0	0	0	0	0.000	0.000	120	0.02	7	-	-	-
WH Wrap	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Pipe Insul.	1,126	315	778	33	0	0	1,126	315	778	33	0	0	16,288	0.0	0.0	14,229	6.6	2,297	108	0	0	14	0.000	0.000	45	0.01	3	3	-	-
LF Showerhead	185	43	138	4	0	0	204	48	151	5	0	0	1,741	0.0	0.2	8,258	3.2	999	30	0	0	9	0.000	0.004	192	0.02	7	8	-	-
Faucet Aerator	312	51	256	5	0	0	489	78	405	6	0	0	1,901	0.0	0.1	2,717	1.9	570	9	0	0	6	0.000	0.001	53	0.01	2	2	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	827	118	675	34	0	0	827	118	675	34	0	0	1,289,234	0.0	0.4	15,857	145.0	23,656	1,211	0	0	1,559	0.000	0.003	134	0.21	35	36	-	-
Lighting	883	883					7,773	7,773					47,166	21.3	39.4	203,184	-	-	-	-	-	53	0.024	0.045	230	-	-	-	-	-
Refrigerator/Freezer[3]	236	236					266	266					174,702	17.2	16.1	140,567	-	-	-	-	-	740	0.073	0.068	596	-	-	-	-	-
Refrigerator Removal	4	4					5	5					100	0.3	0.3	2,558	-	-	-	-	-	25	0.079	0.074	640	-	-	-	-	-
Refrigerator Exchange	197	197					204	204					149,737	13.0	12.2	106,276	-	-	-	-	-	760	0.066	0.062	539	-	-	-	-	-
Freezer Removal	3	3					3	3					80	0.2	0.2	1,769	-	-	-	-	-	27	0.073	0.068	590	-	-	-	-	-
Freezer Exchange	53	53					54	54					24,784	3.7	3.4	29,963	-	-	-	-	-	468	0.070	0.065	565	-	-	-	-	-

Total Non-Efficiency Measures	1,255												**7,505,630**									**5,981**								
Misc Ins,Attic Access/Vent	1,084												294,476									272								
Duct Sealing	381												69,494									182								
Duct Insulation	543												59,284									109								
Damming Material	664												46,668									70								
Htg. Sys. Tune & Clean	376												75,601									201								
Htg. Sys./WH Other	310												170,738									551								
Air Conditioning Work	28												4,614									165								
Water Heater Repair	118												14,173									120								
Refrigerator Coil Clean	0												0									0								
Waterbed Mattress Pad	0												0									0								
Programmable Tstat	82												8,017									98								
Unspecified Utility Meas	0												0									0								
CO Detector	1,178												84,344									72								
Smoke Detector	859												50,179									58								
Fuses	10												1,130									113								
Htg Sys Safety Check	1												85									85								
Htg Sys Ventilation	742												155,412									209								
Water Heater Ventilation	639												100,119									157								
Bathroom Ventilation	489												81,874									167								
Dryer Ventilation	835												89,626									107								
Kitchen Ventilation	0												0									0								
Other Exhaust Ventilation	434												18,705									43								
Asbestos Removal (Minor)	20												26,229									1,311								
Health/Safety Repairs	860												443,566									516								
Health/Safety Other	137												10,199									74								
Consumables	382												16,630									44								
General Repairs	1,158												828,300									715								
Meter Refrig (no action)	915												0									0								
Meter Freezer (no action)	322												0									0								
Support	1,243												4,570,198									3,677								
Transportation Allowance	253												35,244									139								
Landlord Contr Misc	1												(2,000)									-2,000								
Landlord Contr Furnace	0												0									0								
Landlord Contr DHW	0												0									0								
Client Contr (Any)	0												0									0								
Lead Safe Work	820												252,727									308								
Unspecifed/Other	0												0									0								

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Iowa Division of Community Action Agencies

Billing Adjusted Costs and Impacts for DCAA-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $10,870,884

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $10,870,884

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Dwellings with kWh Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Total Efficiency Measures	**1,251**	**1,247**	**1,049**	**104**	**14**	**2**	**1,218**	**1,247**	**4,370,921**	**88.4**		**101.4**		**324,984**	**783**	**75,404**	**28,672**	**1,932**	**35**	**3,494**	**0.073**		**0.081**		**261**	**0.75**	**72**	**276**	**138**	**17**
Total Shell & Htg. Sys. Repl	1,245	1,245	1,045	104	14	2	1,193	1,244	3,816,149	76.0	71,683	83.9	129,036	200,719	735	67,073	27,313	1,932	35	3,065	0.064	60	0.067	104	161	0.70	64	263	138	17
Total Shell Measures	1,244	1,244	1,045	104	14	2	1,193	1,243	2,674,450	76.0	71,683	81.5	125,323	197,006	399	36,343	14,533	1,293	25	2,150	0.064	60	0.066	101	158	0.38	35	140	92	12
Wall Insul.	328	239	186	59	9	0	234	13	424,276	27.6	33,292	10.5	16,508	49,800	125	11,429	4,771	372	0	1,294	0.118	142	0.806	1,270	208	0.67	61	81	41	-
Open Blown Ceiling Insul	402	294	210	82	11	2	289	20	235,311	24.9	30,063	22.3	34,317	64,380	97	8,799	4,006	494	7	585	0.086	104	1.116	1,716	219	0.46	42	49	45	4
Cavity Fill Insul	134	90	83	21	3	0	87	8	92,233	4.4	5,322	3.7	5,671	10,994	38	3,548	1,174	93	0	688	0.051	61	0.459	709	122	0.46	43	56	31	-
Sloped Attic Insul	139	103	82	25	4	1	102	5	60,591	5.0	6,041	1.5	2,380	8,421	28	2,613	1,017	101	6	436	0.049	59	0.309	476	82	0.34	32	41	25	6
Kneewall Insul	117	85	59	21	2	1	84	5	38,236	1.8	2,184	1.0	1,575	3,760	7	670	562	15	3	327	0.022	26	0.209	315	44	0.12	11	27	8	3
Infil. Reduction	1,119	954	873	103	14	2	947	64	771,523	12.4	14,951	9.8	14,983	29,934	126	11,468	1,898	119	5	689	0.013	16	0.153	234	31	0.14	13	18	8	2
Found./Crawl. Insul	194	56	114	49	8	2	50	9	116,709	2.8	3,352	2.9	4,326	7,678	19	1,777	1,038	89	4	602	0.056	67	0.318	481	137	0.17	16	21	11	2
Bandjoist Insul.	179	12	96	62	9	0	-	12	36,574	0.0	0	2.2	3,424	3,424	6	599	541	40	0	204	0.000	0	0.184	285	285	0.07	6	9	4	-
Furnace Blower Fan[1]	1,082	1,082	962	104	14	2	-	1,082	0	0.0	0	58.1	89,020	89,020	(3)	(289)	(54)	(6)	(0)	0	0.000	0	0.054	82	82	(0.00)	(0)	(1)	(0)	(0)
Exhaust Ventilation[2]	948	948	807	73	6	1	948	948	898,996	-2.9	(23,523)	(30.5)	(46,882)	(70,405)	(46)	(4,269)	(421)	(24)	(1)	948	-0.003	(25)	(0.032)	(49)	(74)	(0.06)	(5)	(6)	(4)	(1)
Total Heating System Repl	426	26	312	79	8	1	-	26	1,141,699	0.0	0	2.4	3,713	3,713	336	30,730	12,781	639	10	2,680	0.000	0	0.093	143	143	1.08	98	162	80	10
Condensing Htg Sys Rep	321	0	238	76	6	1	-	-	848,444	0.0	0	0.0	0	0	223	20,192	11,122	518	10	2,643	-	-	-	-	-	0.94	85	146	86	10
Non-Cond Htg Sys Repl	99	0	88	9	2	0	-	-	181,203	0.0	0	0.0	0	0	114	10,538	1,659	121	0	1,830	-	-	-	-	-	1.29	120	184	60	-
Electric Htg Sys Repl	16	16	0	0	0	0	-	16	49,127	0.0	0	1.3	1,997	1,997	0	0	0	0	0	3,070	0.000	0	0.082	125	125	-	-	-	-	-
Heat Pump Repl	11	11	0	0	0	0	-	11	62,924	0.0	0	1.1	1,716	1,716	0	0	0	0	0	5,720	0.000	0	0.102	156	156	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-

	Number of Measures Installed by Fuel Type: Total	Electric	Gas	Propane	Fuel Oil	Other		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Water Heating	682	158	482	42	0	0	480,107	0.0	0.2	14,611	47.8	8,331	1,358	0	0	704	0.000	0.002	92	0.099	17	32	-	-
Temp. Reduct.	4	4	0	0	0	0	0	0.0	0.0	489	0.0	0	0	0	0	0	0.000	0.000	122	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Pipe Insul.	349	102	214	33	0	0	4,931	0.0	0.0	4,590	1.9	655	108	0	0	14	0.000	0.000	45	0.01	3	3	-	-
LF Showerhead	46	12	30	4	0	0	457	0.0	0.1	2,229	0.7	228	30	0	0	10	0.000	0.004	186	0.02	8	8	-	-
Faucet Aerator	77	16	56	5	0	0	598	0.0	0.0	1,026	0.5	154	9	0	0	8	0.000	0.001	64	0.01	3	2	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	528	78	416	34	0	0	474,120	0.0	0.2	6,277	44.7	7,295	1,211	0	0	898	0.000	0.002	80	0.11	18	36	-	-
Lighting	256	256					13,872	6.2	11.4	58,628	-	-	-	-	-	54	0.024	0.044	229	-	-	-	-	-
Refrigerator/Freezer[3]	123	123					60,793	6.2	5.8	51,026	-	-	-	-	-	494	0.051	0.047	415	-	-	-	-	-
Refrigerator Removal	3	3					60	0.3	0.2	2,047	-	-	-	-	-	20	0.084	0.078	682	-	-	-	-	-
Refrigerator Exchange	91	91					46,326	3.6	3.4	30,115	-	-	-	-	-	509	0.040	0.037	331	-	-	-	-	-
Freezer Removal	3	3					80	0.2	0.2	1,769	-	-	-	-	-	27	0.073	0.068	590	-	-	-	-	-
Freezer Exchange	34	34					14,327	2.1	2.0	17,096	-	-	-	-	-	421	0.062	0.058	503	-	-	-	-	-

Total Non-Efficiency Measures	1,255							**6,499,963**								**5,179**								
Misc Ins,Attic Access/Vent	1,031							246,466								239								
Duct Sealing	345							58,620								170								
Duct Insulation	527							54,131								103								
Damming Material	664							46,668								70								
Htg. Sys. Tune & Clean	258							55,765								216								
Htg. Sys./WH Other	310							170,738								551								
Air Conditioning Work	28							4,614								165								
Water Heater Repair	118							14,173								120								
Refrigerator Coil Clean	0							0								0								
Waterbed Mattress Pad	0							0								0								
Programmable Tstat	0							0								0								
Unspecified Utility Meas	0							0								0								
CO Detector	1,178							84,344								72								
Smoke Detector	858							50,099								58								
Fuses	10							1,130								113								
Htg Sys Safety Check	1							85								85								
Htg Sys Ventilation	333							69,818								210								
Water Heater Ventilation	203							33,453								165								
Bathroom Ventilation	489							81,874								167								
Dryer Ventilation	835							89,626								107								
Kitchen Ventilation	0							0								0								
Other Exhaust Ventilation	434							18,705								43								
Asbestos Removal (Minor)	20							26,229								1,311								
Health/Safety Repairs	806							435,763								541								
Health/Safety Other	137							10,199								74								
Consumables	382							16,630								44								
General Repairs	949							660,155								696								
Meter Refrig (no action)	688							0								0								
Meter Freezer (no action)	262							0								0								
Support	1,223							3,984,827								3,258								
Transportation Allowance	253							35,244								139								
Landlord Contr Misc	1							(2,000)								-2,000								
Landlord Contr Furnace	0							0								0								
Landlord Contr DHW	0							0								0								
Client Contr (Any)	0							0								0								
Lead Safe Work	819							252,607								308								
Unspecifed/Other	0							0								0								

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Alliant - Interstate Power and Light

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $2,911,284

Utility Administration Expenditures: $139,762

Total Labor and Material Expenditures: $2,771,522

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Number of Dwellings with Electricity Impacts by Season: Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Gas Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Gas Annual therms
Total Efficiency Measures	**621**	**549**	**380**	**545**	**549**	**2,286,936**	**111.2**		**95.5**		**381,713**	**826**	**79,909**	**3,683**	**0.204**		**0.174**		**695**	**2.17**	**210**
Total Shell & Htg. Sys. Repl	601	530	378	488	528	1,814,359	95.5	115,198	72.2	110,668	225,866	779	71,736	3,019	0.196	236	0.137	210	426	2.06	190
Total Shell Measures	601	530	378	488	527	1,170,169	95.5	115,198	71.6	109,830	225,028	490	45,210	1,947	0.196	236	0.136	208	425	1.30	120
Wall Insul.	332	273	229	273	11	441,480	35.7	43,112	9.3	14,154	57,266	177	16,336	1,330	0.131	158	0.847	1,287	210	0.77	71
Open Blown Ceiling Insul.	467	396	302	395	24	265,322	37.7	45,467	25.0	38,112	83,579	156	14,449	568	0.095	115	1.043	1,588	211	0.52	48
Cavity Fill Insul.	103	79	79	79	3	70,044	4.1	4,895	2.1	3,268	8,163	36	3,257	680	0.051	62	0.699	1,089	103	0.45	41
Sloped Attic Insul.	163	135	118	135	5	66,930	6.8	8,180	2.8	4,359	12,538	47	4,358	411	0.050	61	0.568	872	93	0.40	37
Kneewall Insul.	137	110	94	109	6	49,651	2.9	3,515	2.9	4,589	8,104	16	1,462	362	0.027	32	0.490	765	74	0.17	16
Infil. Reduction	458	375	330	374	28	163,118	3.6	4,314	3.1	4,708	9,023	29	2,678	356	0.010	12	0.111	168	24	0.09	8
Found./Crawl. Insul.	200	80	158	76	10	82,467	4.7	5,714	3.0	4,569	10,284	21	1,948	412	0.062	75	0.305	457	129	0.14	12
Bandjoist Insul.	146	14	132	-	14	31,156	0.0	0	1.7	2,555	2,555	9	855	213	0.000	0	0.119	183	183	0.07	6
Furnace Blower Fan[1]	569	498	378	-	498	0	0.0	0	21.6	33,516	33,516	(1)	(132)	0	0.000	0	0.043	67	67	(0.00)	(0)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	254	8	246	-	8	644,190	0.0	0	0.6	838	838	290	26,526	2,536	0.000	0	0.070	105	105	1.18	108
Condensing Htg Sys Repl	246	0	246	-	-	618,650	0.0	0	0.0	0	0	290	26,526	2,515	-	-	-	-	-	1.18	108
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	6	6	0	-	6	18,540	0.0	0	0.5	761	761	0	0	3,090	0.000	0	0.084	127	127	-	-
Heat Pump Repl	2	2	0	-	2	7,000	0.0	0	0.1	77	77	0	0	3,500	0.000	0	0.026	39	39	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-

	Number of Measures: Total	Electric	Gas	Number of Measures by Fuel Type: Total	Electric	Gas		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms
Water Heating	429	153	276	800	221	578	384,702	0.0	0.2	15,679	47.0	8,174	897	0.000	0.002	102	0.170	30
Temp. Reduct.	1	1	0	1	1	0	0	0.0	0.0	115	0.0	0	0	0.000	0.000	115	-	-
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Pipe Insul.	354	141	213	354	141	213	4,063	0.0	0.0	6,313	1.8	612	11	0.000	0.000	45	0.01	3
LF Showerhead	48	13	35	48	13	35	293	0.0	0.1	2,491	0.8	242	6	0.000	0.004	192	0.02	7
Faucet Aerator	101	17	84	134	20	114	322	0.0	0.0	681	0.5	154	3	0.000	0.001	40	0.01	2
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	289	52	237	263	46	216	380,024	0.0	0.2	6,079	43.9	7,166	1,315	0.000	0.003	117	0.19	30
Lighting	361	361		3,139	3,139		16,614	9.3	17.1	88,279	-	-	46	0.026	0.047	245	-	-
Refrigerator/Freezer[3]	97	97		99	99		71,261	6.4	6.0	51,888	-	-	735	0.066	0.062	535	-	-
Refrigerator Removal	1	1		1	1		40	0.1	0.1	512	-	-	40	0.063	0.059	512	-	-
Refrigerator Exchange	92	92		87	87		65,962	5.6	5.2	45,279	-	-	717	0.061	0.057	492	-	-
Freezer Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Freezer Exchange	11	11		11	11		5,260	0.8	0.7	6,098	-	-	478	0.068	0.064	554	-	-

Total Non-Efficiency Measures	620	**484,586**	**782**
Misc Ins,Attic Access/Vent	202	30,937	153
Duct Sealing	19	4,213	222
Duct Insulation	6	692	115
Damming Material	0	0	0
Htg. Sys. Tune & Clean	80	8,132	102
Htg. Sys./WH Other	0	0	0
Air Conditioning Work	0	0	0
Water Heater Repair	0	0	0
Refrigerator Coil Clean	0	0	0
Waterbed Mattress Pad	0	0	0
Programmable Tstat	38	3,667	97
Unspecified Utility Meas.	0	0	0
CO Detector	0	0	0
Smoke Detector	0	0	0
Fuses	0	0	0
Htg Sys Safety Check	0	0	0
Htg Sys Ventilation	221	35,071	159
Water Heater Ventilation	207	26,430	128
Bathroom Ventilation	0	0	0
Dryer Ventilation	0	0	0
Kitchen Ventilation	0	0	0
Other Exhaust Ventilation	0	0	0
Asbestos Removal (Minor)	0	0	0
Health/Safety Repairs	66	3,884	59
Health/Safety Other	0	0	0
Consumables	0	0	0
General Repairs	377	98,514	261
Meter Refrig (no action)	121	0	0
Meter Freezer (no action)	39	0	0
Support	611	273,046	447
Transportation Allowance	0	0	0
Landlord Contr Misc	0	0	0
Landlord Contr Furnace	0	0	0
Landlord Contr DHW	0	0	0
Client Contr (Any)	0	0	0
Lead Safe Work	0	0	0
Unspecifed/Other	0	0	0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Alliant - Interstate Power and Light

Billing Adjusted Impacts for All Customers of the Utility From All Funding Sources

Measure	Number of Dwellings with Impacts			Number of Dwellings with Electricity Impacts		Billing Adjusted First-Year Savings							Average Billing Adjusted Savings per Dwelling Receiving Measures						
				Season		Electricity					Gas		Electricity					Gas	
						Summer		Winter		Annual	Pk-Day	Annual	Summer		Winter		Annual	Pk-Day	Annual
	Total	Electric	Gas	Cooling	Heating	kW	kWh	kW	kWh	kWh	therms	therms	kW	kWh	kW	kWh	kWh	therms	therms
Total Efficiency Measures	**650**	**571**	**394**	**570**	**570**	**122.3**		**113.6**		**427,577**	**961**	**92,923**	**0.215**		**0.199**		**749**	**2.44**	**236**
Total Shell & Htg. Sys. Repl	650	571	394	562	570	104.6	117,744	88.1	134,903	252,647	907	83,429	0.186	210	0.155	237	442	2.30	212
Total Shell Measures	650	571	394	562	570	104.6	117,744	86.7	132,753	250,496	547	50,439	0.186	210	0.152	233	439	1.39	128
Wall Insul.	355	288	245	288	11	38.1	45,910	9.5	14,430	60,340	193	17,837	0.132	159	0.863	1,312	210	0.79	73
Open Blown Ceiling Insul.	501	419	321	418	25	40.1	48,320	25.9	39,503	87,822	167	15,491	0.096	116	1.037	1,580	210	0.52	48
Cavity Fill Insul.	113	83	86	83	3	4.3	5,152	2.1	3,268	8,420	39	3,616	0.051	62	0.699	1,089	101	0.46	42
Sloped Attic Insul.	178	144	128	144	5	7.4	8,874	2.8	4,359	13,232	51	4,757	0.051	62	0.568	872	92	0.40	37
Kneewall Insul.	146	115	98	114	6	3.0	3,643	2.9	4,589	8,232	17	1,541	0.026	32	0.490	765	72	0.17	16
Infil. Reduction	628	528	393	527	30	7.8	9,461	5.0	7,564	17,025	64	5,899	0.015	18	0.166	252	32	0.16	15
Found./Crawl. Insul.	222	89	171	84	11	5.2	6,313	3.1	4,641	10,954	23	2,055	0.062	75	0.281	422	123	0.13	12
Bandjoist Insul.	159	14	145	-	14	0.0	0	1.7	2,579	2,579	10	937	0.000	0	0.120	184	184	0.07	6
Furnace Blower Fan[1]	612	533	394	-	533	0.0	0	46.4	71,514	71,514	(2)	(211)	0.000	0	0.087	134	134	(0.01)	(1)
Exhaust Ventilation[2]	466	402	286	402	402	-1.2	(9,929)	(12.8)	(19,693)	(29,622)	(16)	(1,483)	-0.003	(25)	(0.032)	(49)	(74)	(0.06)	(5)
Total Heating System Repl	283	15	268	-	15	0.0	0	1.4	2,151	2,151	360	32,990	0.000	0	0.095	143	143	1.34	123
Condensing Htg Sys Repl	260	0	260	-	-	0.0	0	0.0	0	0	328	29,994	-	-	-	-	-	1.26	115
Non-Cond Htg Sys Repl	25	0	25	-	-	0.0	0	0.0	0	0	32	2,996	-	-	-	-	-	1.29	120
Electric Htg Sys Repl	12	12	0	-	12	0.0	0	1.2	1,738	1,738	0	0	0.000	0	0.096	145	145	-	-
Heat Pump Repl	3	3	0	-	3	0.0	0	0.3	412	412	0	0	0.000	0	0.090	137	137	-	-
Other Htg Sys Repl	0	0	0	-	0	0.0	0	0.0	0	0	0	0	-	-	-	-	-	-	-

				Number of Measures by Fuel Type			Summer	Winter	Annual	Pk-Day	Annual	Summer	Winter	Annual	Pk-Day	Annual
	Total	Electric	Gas	Total	Electric	Gas	kW	kW	kWh	therms	therms	kW	kW	kWh	therms	therms
Water Heating	463	172	291	0	0	0	0.0	0.3	17,969	54.6	9,494	0.000	0.002	104	0.188	33
Temp. Reduct.	1	1	0	0	0	0	0.0	0.0	115	0.0	0	0.000	0.000	115	-	-
WH Wrap	0	0	0	0	0	0	0.0	0.0	0	0.0	0	-	-	-	-	-
Pipe Insul.	418	160	258	0	0	0	0.0	0.0	7,137	2.1	743	0.000	0.000	45	0.01	3
LF Showerhead	50	12	38	0	0	0	0.0	0.1	2,272	0.9	262	0.000	0.004	189	0.02	7
Faucet Aerator	104	17	87	0	0	0	0.0	0.0	706	0.5	161	0.000	0.001	42	0.01	2
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0.0	0.0	0	0.0	0	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	307	59	248	0	0	0	0.0	0.2	7,738	51.0	8,327	0.000	0.003	131	0.21	34
Lighting	374	374		0	0		9.5	17.5	90,440	-	-	0.025	0.047	242	-	-
Refrigerator/Freezer[3]	113	113		0	0		8.2	7.6	66,520	-	-	0.072	0.068	589	-	-
Refrigerator Removal	2	2		0	0		0.1	0.1	1,023	-	-	0.063	0.059	512	-	-
Refrigerator Exchange	97	97		0	0		6.2	5.8	50,650	-	-	0.064	0.060	522	-	-
Freezer Removal	1	1		0	0		0.1	0.1	545	-	-	0.067	0.063	545	-	-
Freezer Exchange	25	25		0	0		1.8	1.6	14,302	-	-	0.070	0.066	572	-	-

Black Hills Energy

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $552,679

Utility Administration Expenditures: $25,479

Total Labor and Material Expenditures: $527,200

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Number of Dwellings with Electricity Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Gas Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Gas Annual therms
Total Efficiency Measures	**113**	**0**	**113**	**0**	**0**	**435,514**	**0.0**		**0.0**		**0**	**198**	**19,275**	**3,854**	**-**		**-**		**-**	**1.75**	**171**
Total Shell & Htg. Sys. Repl	111	0	111	0	0	355,706	0.0	0	0.0	0	0	186	17,170	3,205	-	-	-	-	-	1.67	155
Total Shell Measures	111	0	111	0	0	188,230	0.0	0	0.0	0	0	107	9,965	1,696	-	-	-	-	-	0.97	90
Wall Insul.	56	0	56	0	0	69,502	0.0	0	0.0	0	0	41	3,754	1,241	-	-	-	-	-	0.72	67
Open Blown Ceiling Insul.	82	0	82	0	0	42,298	0.0	0	0.0	0	0	24	2,204	516	-	-	-	-	-	0.29	27
Cavity Fill Insul.	17	0	17	0	0	10,920	0.0	0	0.0	0	0	12	1,100	642	-	-	-	-	-	0.69	65
Sloped Attic Insul.	25	0	25	0	0	13,684	0.0	0	0.0	0	0	12	1,155	547	-	-	-	-	-	0.50	46
Kneewall Insul.	25	0	25	0	0	9,785	0.0	0	0.0	0	0	4	395	391	-	-	-	-	-	0.17	16
Infil. Reduction	65	0	65	0	0	18,814	0.0	0	0.0	0	0	6	536	289	-	-	-	-	-	0.09	8
Found./Crawl. Insul.	31	0	31	0	0	16,801	0.0	0	0.0	0	0	6	525	542	-	-	-	-	-	0.18	17
Bandjoist Insul.	33	0	33	-	0	6,426	0.0	0	0.0	0	0	3	321	195	-	-	-	-	-	0.11	10
Furnace Blower Fan[1]	111	0	111	-	0	0	0.0	0	0.0	0	0	(0)	(24)	0	-	-	-	-	-	(0.00)	(0)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	66	0	66	-	0	167,476	0.0	0	0.0	0	0	78	7,205	2,538	-	-	-	-	-	1.19	109
Condensing Htg Sys Repl	66	0	66	-	-	167,476	0.0	0	0.0	0	0	78	7,205	2,538	-	-	-	-	-	1.19	109
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Heat Pump Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
	Total	**Electric**	**Gas**	**Number of Measures by Fuel Type: Total**	**Electric**	**Gas**		**Summer kW**		**Winter kW**	**Annual kWh**	**Pk-Day therms**	**Annual therms**		**Summer kW**		**Winter kW**		**Annual kWh**	**Pk-Day therms**	**Annual therms**
Water Heating	77	0	77	149	0	149	79,808	0.0		0.0	0	12.0	2,105	1,036	-		-		-	0.156	27
Temp. Reduct.	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
Pipe Insul.	67	0	67	67	0	67	1,082	0.0		0.0	0	0.6	196	16	-		-		-	0.01	3
LF Showerhead	8	0	8	8	0	8	66	0.0		0.0	0	0.2	55	8	-		-		-	0.02	7
Faucet Aerator	15	0	15	22	0	22	84	0.0		0.0	0	0.1	30	6	-		-		-	0.01	2
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
Hi-Eff or Electric Wtr Htr Repl.	56	0	56	52	0	52	78,575	0.0		0.0	0	11.2	1,824	1,403	-		-		-	0.20	33
Lighting	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Refrigerator/Freezer[3]	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Refrigerator Removal	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Refrigerator Exchange	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Freezer Removal	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Freezer Exchange	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Total Non-Efficiency Measures	113					**91,686**								**811**							
Misc Ins,Attic Access/Vent	24					3,483								145							
Duct Sealing	0					0								0							
Duct Insulation	5					696								139							
Damming Material	0					0								0							
Htg. Sys. Tune & Clean	22					2,329								106							
Htg. Sys./WH Other	0					0								0							
Air Conditioning Work	0					0								0							
Water Heater Repair	0					0								0							
Refrigerator Coil Clean	0					0								0							
Waterbed Mattress Pad	0					0								0							
Programmable Tstat	0					0								0							
Unspecified Utility Meas.	0					0								0							
CO Detector	0					0								0							
Smoke Detector	0					0								0							
Fuses	0					0								0							
Htg Sys Safety Check	0					0								0							
Htg Sys Ventilation	64					12,633								197							
Water Heater Ventilation	50					9,344								187							
Bathroom Ventilation	0					0								0							
Dryer Ventilation	0					0								0							
Kitchen Ventilation	0					0								0							
Other Exhaust Ventilation	0					0								0							
Asbestos Removal (Minor)	0					0								0							
Health/Safety Repairs	11					903								82							
Health/Safety Other	0					0								0							
Consumables	0					0								0							
General Repairs	52					12,432								239							
Meter Refrig (no action)	0					0								0							
Meter Freezer (no action)	0					0								0							
Support	110					49,866								453							
Transportation Allowance	0					0								0							
Landlord Contr Misc	0					0								0							
Landlord Contr Furnace	0					0								0							
Landlord Contr DHW	0					0								0							
Client Contr (Any)	0					0								0							
Lead Safe Work	0					0								0							
Unspecifed/Other	0					0								0							

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Black Hills Energy
Billing Adjusted Impacts for All Customers of the Utility From All Funding Sources

Measure	Number of Dwellings with Impacts			Number of Dwellings with Electricity Impacts		Billing Adjusted First-Year Savings							Average Billing Adjusted Savings per Dwelling Receiving Measures						
				Season		Electricity					Gas		Electricity					Gas	
						Summer		Winter		Annual	Pk-Day	Annual	Summer		Winter		Annual	Pk-Day	Annual
	Total	Electric	Gas	Cooling	Heating	kW	kWh	kW	kWh	kWh	therms	therms	kW	kWh	kW	kWh	kWh	therms	therms
Total Efficiency Measures	**145**	**0**	**144**	**0**	**1**	**0.0**		**0.0**		**218**	**305**	**29,698**	**0.000**		**0.000**		**218**	**2.12**	**206**
Total Shell & Htg. Sys. Repl	144	0	144	0	0	0.0	0	0.0	0	0	287	26,640	-	-	-	-	-	1.99	185
Total Shell Measures	144	0	144	0	0	0.0	0	0.0	0	0	169	15,721	-	-	-	-	-	1.17	109
Wall Insul.	80	0	80	0	0	0.0	0	0.0	0	0	59	5,531	-	-	-	-	-	0.74	69
Open Blown Ceiling Insul.	114	0	114	0	0	0.0	0	0.0	0	0	38	3,567	-	-	-	-	-	0.34	31
Cavity Fill Insul.	25	0	25	0	0	0.0	0	0.0	0	0	15	1,447	-	-	-	-	-	0.62	58
Sloped Attic Insul.	41	0	41	0	0	0.0	0	0.0	0	0	20	1,859	-	-	-	-	-	0.48	45
Kneewall Insul.	33	0	33	0	0	0.0	0	0.0	0	0	5	508	-	-	-	-	-	0.17	15
Infil. Reduction	141	0	141	0	0	0.0	0	0.0	0	0	22	2,065	-	-	-	-	-	0.16	15
Found./Crawl. Insul.	47	0	47	0	0	0.0	0	0.0	0	0	10	948	-	-	-	-	-	0.22	20
Bandjoist Insul.	51	0	51	-	0	0.0	0	0.0	0	0	5	468	-	-	-	-	-	0.10	9
Furnace Blower Fan[1]	144	0	144	-	0	0.0	0	0.0	0	0	(1)	(69)	-	-	-	-	-	(0.01)	(0)
Exhaust Ventilation[2]	115	0	115	0	0	0.0	0	0.0	0	0	(7)	(603)	-	-	-	-	-	(0.06)	(5)
Total Heating System Repl	94	0	94	-	0	0.0	0	0.0	0	0	118	10,918	-	-	-	-	-	1.26	116
Condensing Htg Sys Repl	88	0	88	-	-	0.0	0	0.0	0	0	112	10,349	-	-	-	-	-	1.27	118
Non-Cond Htg Sys Repl	6	0	6	-	-	0.0	0	0.0	0	0	6	570	-	-	-	-	-	1.03	95
Electric Htg Sys Repl	0	0	0	-	0	0.0	0	0.0	0	0	0	0	-	-	-	-	-	-	-
Heat Pump Repl	0	0	0	-	0	0.0	0	0.0	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0.0	0	0.0	0	0	0	0	-	-	-	-	-	-	-

				Number of Measures by Fuel Type														
	Total	Electric	Gas	Total	Electric	Gas	Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms
Water Heating	108	0	107	0	0	0	0.0	0.0	218	17.5	3,058	0.000	0.000	218	0.163	29
Temp. Reduct.	0	0	0	0	0	0	0.0	0.0	0	0.0	0	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0.0	0.0	0	0.0	0	-	-	-	-	-
Pipe Insul.	102	0	102	0	0	0	0.0	0.0	0	0.9	301	-	-	-	0.01	3
LF Showerhead	11	0	10	0	0	0	0.0	0.0	218	0.2	69	0.000	0.000	218	0.02	7
Faucet Aerator	16	0	16	0	0	0	0.0	0.0	0	0.1	31	-	-	-	0.01	2
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0.0	0.0	0	0.0	0	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	77	0	77	0	0	0	0.0	0.0	0	16.3	2,657	-	-	-	0.21	35
Lighting	0	0		0	0		0.0	0.0	0	-	-	-	-	-	-	-
Refrigerator/Freezer[3]	0	0		0	0		0.0	0.0	0	-	-	-	-	-	-	-
Refrigerator Removal	0	0		0	0		0.0	0.0	0	-	-	-	-	-	-	-
Refrigerator Exchange	0	0		0	0		0.0	0.0	0	-	-	-	-	-	-	-
Freezer Removal	0	0		0	0		0.0	0.0	0	-	-	-	-	-	-	-
Freezer Exchange	0	0		0	0		0.0	0.0	0	-	-	-	-	-	-	-

MidAmerican Energy

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $2,546,650

Utility Administration Expenditures: $95,340

Total Labor and Material Expenditures: $2,451,309

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Number of Dwellings with Electricity Impacts Season: Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Gas Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Gas Annual therms
Total Efficiency Measures	**463**	**376**	**373**	**366**	**376**	**2,021,915**	**78.7**		**76.2**		**280,295**	**809**	**78,132**	**4,367**	**0.215**		**0.203**		**745**	**2.17**	**209**
Total Shell & Htg. Sys. Repl	448	363	369	317	362	1,598,040	68.2	82,207	60.8	92,670	174,877	759	69,212	3,567	0.215	259	0.168	256	482	2.06	188
Total Shell Measures	448	363	369	317	362	1,058,015	68.2	82,207	60.6	92,448	174,655	479	43,691	2,362	0.215	259	0.168	255	481	1.30	118
Wall Insul.	254	195	216	194	7	415,217	27.2	32,856	4.8	7,121	39,977	166	15,144	1,635	0.140	169	0.681	1,017	205	0.77	70
Open Blown Ceiling Insul.	347	269	282	266	20	252,081	27.4	33,037	28.1	43,040	76,077	157	14,300	726	0.103	124	1.405	2,152	283	0.56	51
Cavity Fill Insul.	123	92	116	92	2	87,585	4.2	5,106	0.0	72	5,178	50	4,558	712	0.046	56	0.024	36	56	0.43	39
Sloped Attic Insul.	98	72	88	71	2	41,860	4.1	4,945	1.6	2,377	7,321	33	2,970	427	0.058	70	0.812	1,188	102	0.37	34
Kneewall Insul.	97	63	89	63	1	31,027	1.2	1,467	0.5	726	2,193	14	1,237	320	0.019	23	0.495	726	35	0.15	14
Infil. Reduction	253	182	229	181	7	92,030	2.0	2,426	0.6	923	3,349	22	2,062	364	0.011	13	0.087	132	18	0.10	9
Found./Crawl. Insul.	147	36	129	31	10	110,462	2.0	2,370	2.2	3,400	5,770	29	2,617	751	0.063	76	0.221	340	160	0.22	20
Bandjoist Insul.	143	12	131	-	12	27,754	0.0	0	1.9	2,889	2,889	10	934	194	0.000	0	0.158	241	241	0.08	7
Furnace Blower Fan[1]	423	338	369	-	338	0	0.0	0	20.9	31,901	31,901	(1)	(132)	0	0.000	0	0.062	94	94	(0.00)	(0)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	230	2	228	-	2	540,025	0.0	0	0.1	222	222	280	25,521	2,348	0.000	0	0.071	111	111	1.23	112
Condensing Htg Sys Repl	228	0	228	-	-	533,777	0.0	0	0.0	0	0	280	25,521	2,341	-	-	-	-	-	1.23	112
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	2	2	0	-	2	6,248	0.0	0	0.1	222	222	0	0	3,124	0.000	0	0.071	111	111	-	-
Heat Pump Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-

	Number of Measures: Total	Electric	Gas	Number of Measures by Fuel Type: Total	Electric	Gas		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms
Water Heating	380	77	303	886	149	737	364,547	0.0	0.2	11,490	49.9	8,919	959	0.000	0.002	149	0.165	29
Temp. Reduct.	2	1	1	2	1	1	0	0.0	0.0	115	0.0	7	0	0.000	0.000	115	0.02	7
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Pipe Insul.	356	72	284	356	72	284	6,212	0.0	0.0	3,326	2.4	835	17	0.000	0.000	46	0.01	3
LF Showerhead	84	18	66	99	23	76	924	0.0	0.1	3,538	1.5	475	11	0.000	0.004	197	0.02	7
Faucet Aerator	119	18	101	198	28	170	896	0.0	0.0	1,009	0.8	232	8	0.000	0.001	56	0.01	2
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	259	30	229	231	25	206	356,515	0.0	0.1	3,501	45.2	7,370	1,377	0.000	0.003	117	0.20	32
Lighting	275	275		2,497	2,497		16,680	5.9	10.9	56,277	-	-	61	0.021	0.040	205	-	-
Refrigerator/Freezer[3]	66	66		71	71		42,647	4.6	4.3	37,652	-	-	646	0.070	0.066	570	-	-
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Refrigerator Exchange	56	56		59	59		37,449	3.8	3.6	30,883	-	-	669	0.068	0.063	551	-	-
Freezer Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Freezer Exchange	12	12		12	12		5,198	0.8	0.8	6,769	-	-	433	0.069	0.065	564	-	-

Total Non-Efficiency Measures	468	**429,395**	**918**
Misc Ins,Attic Access/Vent	118	13,588	115
Duct Sealing	25	6,661	266
Duct Insulation	10	3,766	377
Damming Material	0	0	0
Htg. Sys. Tune & Clean	93	9,374	101
Htg. Sys./WH Other	0	0	0
Air Conditioning Work	0	0	0
Water Heater Repair	0	0	0
Refrigerator Coil Clean	0	0	0
Waterbed Mattress Pad	0	0	0
Programmable Tstat	44	4,350	99
Unspecified Utility Meas.	0	0	0
CO Detector	0	0	0
Smoke Detector	1	80	80
Fuses	0	0	0
Htg Sys Safety Check	0	0	0
Htg Sys Ventilation	216	37,888	175
Water Heater Ventilation	204	30,892	151
Bathroom Ventilation	0	0	0
Dryer Ventilation	0	0	0
Kitchen Ventilation	0	0	0
Other Exhaust Ventilation	0	0	0
Asbestos Removal (Minor)	0	0	0
Health/Safety Repairs	51	3,017	59
Health/Safety Other	0	0	0
Consumables	0	0	0
General Repairs	225	57,199	254
Meter Refrig (no action)	106	0	0
Meter Freezer (no action)	21	0	0
Support	443	262,460	592
Transportation Allowance	0	0	0
Landlord Contr Misc	0	0	0
Landlord Contr Furnace	0	0	0
Landlord Contr DHW	0	0	0
Client Contr (Any)	0	0	0
Lead Safe Work	1	120	120
Unspecifed/Other	0	0	0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

MidAmerican Energy

Billing Adjusted Impacts for All Customers of the Utility From All Funding Sources

Measure	Number of Dwellings with Impacts			Number of Dwellings with Electricity Impacts		Billing Adjusted First-Year Savings							Average Billing Adjusted Savings per Dwelling Receiving Measures						
				Season		Electricity					Gas		Electricity					Gas	
						Summer		Winter		Annual	Pk-Day	Annual	Summer		Winter		Annual	Pk-Day	Annual
	Total	Electric	Gas	Cooling	Heating	kW	kWh	kW	kWh	kWh	therms	therms	kW	kWh	kW	kWh	kWh	therms	therms
Total Efficiency Measures	**567**	**472**	**467**	**471**	**472**	**110.2**		**106.2**		**375,762**	**1,221**	**118,083**	**0.234**		**0.225**		**796**	**2.61**	**253**
Total Shell & Htg. Sys. Repl	567	472	467	461	471	96.5	108,123	86.0	131,062	239,185	1,141	104,064	0.209	235	0.183	278	507	2.44	223
Total Shell Measures	566	471	467	461	470	96.5	108,123	85.1	129,655	237,778	688	62,649	0.209	235	0.181	276	505	1.47	134
Wall Insul.	341	266	290	264	12	37.9	45,747	8.1	12,294	58,041	230	20,962	0.144	173	0.675	1,025	218	0.79	72
Open Blown Ceiling Insul.	448	352	371	348	25	36.0	43,373	33.3	50,891	94,264	209	18,957	0.103	125	1.333	2,036	268	0.56	51
Cavity Fill Insul.	180	133	169	133	4	6.4	7,776	0.6	993	8,769	75	6,881	0.048	58	0.161	248	66	0.45	41
Sloped Attic Insul.	133	100	118	99	4	5.4	6,470	1.9	2,734	9,203	43	3,953	0.054	65	0.463	683	92	0.37	33
Kneewall Insul.	131	91	117	91	4	1.9	2,236	1.2	1,821	4,057	18	1,612	0.020	25	0.307	455	45	0.15	14
Infil. Reduction	559	429	465	425	29	7.1	8,620	5.5	8,339	16,959	86	7,866	0.017	20	0.188	288	40	0.19	17
Found./Crawl. Insul.	199	53	177	47	12	3.0	3,565	2.5	3,902	7,467	39	3,541	0.063	76	0.211	325	141	0.22	20
Bandjoist Insul.	191	16	175	-	16	0.0	0	2.3	3,554	3,554	13	1,187	0.000	0	0.145	222	222	0.07	7
Furnace Blower Fan[1]	534	439	467	-	439	0.0	0	42.0	63,981	63,981	(3)	(274)	0.000	0	0.096	146	146	(0.01)	(1)
Exhaust Ventilation[2]	465	392	378	392	392	-1.2	(9,663)	(12.4)	(18,853)	(28,516)	(22)	(2,037)	-0.003	(25)	(0.032)	(48)	(73)	(0.06)	(5)
Total Heating System Repl	328	8	320	-	8	0.0	0	0.9	1,407	1,407	453	41,415	0.000	0	0.115	176	176	1.42	129
Condensing Htg Sys Repl	292	0	292	-	-	0.0	0	0.0	0	0	381	34,715	-	-	-	-	-	1.30	119
Non-Cond Htg Sys Repl	54	0	54	-	-	0.0	0	0.0	0	0	72	6,701	-	-	-	-	-	1.34	124
Electric Htg Sys Repl	4	4	0	-	4	0.0	0	0.4	613	613	0	0	0.000	0	0.100	153	153	-	-
Heat Pump Repl	5	5	0	-	5	0.0	0	0.5	793	793	0	0	0.000	0	0.104	159	159	-	-
Other Htg Sys Repl	0	0	0	-	0	0.0	0	0.0	0	0	0	0	-	-	-	-	-	-	-

				Number of Measures by Fuel Type														
	Total	Electric	Gas	Total	Electric	Gas	Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms
Water Heating	493	88	405	0	0	0	0.0	0.2	14,187	79.2	14,019	0.000	0.003	161	0.195	35
Temp. Reduct.	2	1	1	0	0	0	0.0	0.0	115	0.0	7	0.000	0.000	115	0.02	7
WH Wrap	0	0	0	0	0	0	0.0	0.0	0	0.0	0	-	-	-	-	-
Pipe Insul.	475	84	391	0	0	0	0.0	0.0	3,882	3.4	1,172	0.000	0.000	46	0.01	3
LF Showerhead	109	22	87	0	0	0	0.0	0.1	4,238	2.1	647	0.000	0.004	193	0.02	7
Faucet Aerator	170	19	151	0	0	0	0.0	0.0	1,075	1.2	375	0.000	0.001	57	0.01	2
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0.0	0.0	0	0.0	0	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	359	35	324	0	0	0	0.0	0.1	4,877	72.4	11,817	0.000	0.003	139	0.22	36
Lighting	352	352		0	0		7.8	14.4	74,135	-	-	0.022	0.041	211	-	-
Refrigerator/Freezer[3]	81	81		0	0		5.9	5.5	48,255	-	-	0.073	0.069	596	-	-
Refrigerator Removal	1	1		0	0		0.1	0.1	1,023	-	-	0.126	0.118	1,023	-	-
Refrigerator Exchange	68	68		0	0		4.7	4.4	38,110	-	-	0.069	0.064	560	-	-
Freezer Removal	1	1		0	0		0.1	0.1	679	-	-	0.084	0.078	679	-	-
Freezer Exchange	15	15		0	0		1.0	1.0	8,442	-	-	0.069	0.065	563	-	-

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4. DETAILED SPENDING AND IMPACT PROFILES BY AGENCY

This section provides tables of spending and impacts by agency for state and utility expenditures. Energy impacts were estimated according to the statewide algorithms, which include agency-specific adjustments.

New Opportunities

Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $746,449

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $746,449

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Dwellings with kWh Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Total Efficiency Measures	**49**	**49**	**37**	**7**	**0**	**0**	**49**	**49**	**405,941**	**12.3**		**14.6**		**44,231**	**113**	**10,602**	**2,414**	**0**	**0**	**8,285**	**0.252**		**0.299**		**903**	**3.05**	**287**	**345**	**-**	**-**
Total Shell & Htg. Sys. Repl	49	49	37	7	0	0	48	49	362,082	11.3	13,126	13.0	19,932	33,059	109	9,953	2,327	0	0	7,389	0.235	273	0.266	407	675	2.95	269	332	-	-
Total Shell Measures	49	49	37	7	0	0	48	49	219,240	11.3	13,126	12.9	19,779	32,905	60	5,497	1,365	0	0	4,474	0.235	273	0.264	404	672	1.63	149	195	-	-
Wall Insul.	26	25	19	5	0	0	25	2	29,444	3.7	4,460	1.3	2,050	6,510	12	1,097	401	0	0	1,132	0.148	178	0.670	1,025	260	0.63	58	80	-	-
Open Blown Ceiling Insul	46	45	36	7	0	0	45	3	43,030	3.8	4,643	3.5	5,340	9,983	14	1,286	398	0	0	935	0.086	103	1.164	1,780	222	0.39	36	57	-	-
Cavity Fill Insul	13	13	9	2	0	0	12	2	11,202	0.7	794	0.7	1,097	1,891	4	372	60	0	0	862	0.055	66	0.359	548	145	0.45	41	30	-	-
Sloped Attic Insul	29	28	20	5	0	0	27	4	13,996	1.7	1,991	1.7	2,602	4,593	11	988	183	0	0	483	0.061	74	0.426	651	164	0.54	49	37	-	-
Kneewall Insul	16	15	13	2	0	0	15	1	6,531	0.4	491	0.2	329	820	3	250	42	0	0	408	0.027	33	0.215	329	55	0.21	19	21	-	-
Infil. Reduction	49	48	37	7	0	0	48	5	62,780	0.8	956	0.4	679	1,634	8	771	95	0	0	1,281	0.017	20	0.089	136	34	0.23	21	14	-	-
Found./Crawl. Insul	21	6	17	3	0	0	5	1	10,662	0.3	380	0.2	381	761	2	217	114	0	0	508	0.063	76	0.249	381	127	0.14	13	38	-	-
Bandjoist Insul.	39	4	29	6	0	0	-	4	5,246	0.0	0	1.7	2,558	2,558	7	618	99	0	0	135	0.000	0	0.418	640	640	0.23	21	16	-	-
Furnace Blower Fan[1]	44	44	37	7	0	0	-	44	0	0.0	0	4.0	6,096	6,096	(0)	(17)	(4)	0	0	0	0.000	0	0.091	139	139	(0.00)	(0)	(1)	-	-
Exhaust Ventilation[2]	23	23	17	4	0	0	23	23	36,350	-0.1	(588)	(0.9)	(1,354)	(1,942)	(1)	(86)	(22)	0	0	1,580	-0.003	(26)	(0.039)	(59)	(84)	(0.06)	(5)	(6)	-	-
Total Heating System Repl	41	1	34	6	0	0	-	1	142,841	0.0	0	0.1	154	154	49	4,456	962	0	0	3,484	0.000	0	0.101	154	154	1.44	131	160	-	-
Condensing Htg Sys Rep	40	0	34	6	0	0	-	-	136,252	0.0	0	0.0	0	0	49	4,456	962	0	0	3,406	-	-	-	-	-	1.44	131	160	-	-
Non-Cond Htg Sys Repl	0	0	0	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Electric Htg Sys Repl	1	1	0	0	0	0	-	1	6,589	0.0	0	0.1	154	154	0	0	0	0	0	6,589	0.000	0	0.101	154	154	-	-	-	-	-
Heat Pump Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	Number of Measures Installed by Fuel Type: Total	Electric	Gas	Propane	Fuel Oil	Other																								
Water Heating	48	20	25	3	0	0	57	23	31	3	0	0	39,542	0.0	0.0	1,814	3.9	649	87	0	0	824	0.000	0.002	91	0.155	26	29	-	-
Temp. Reduct.	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	-	-	-	-	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	-	-	-	-	-	-	-	-	-
Pipe Insul.	22	13	9	0	0	0	22	13	9	0	0	0	192	0.0	0.0	599	0.1	26	0	0	0	9	0.000	0.000	46	0.01	3	-	-	-
LF Showerhead	1	1	0	0	0	0	1	1	0	0	0	0	9	0.0	0.0	218	0.0	0	0	0	0	9	0.000	0.005	218	-	-	-	-	-
Faucet Aerator	5	1	4	0	0	0	8	2	6	0	0	0	24	0.0	0.0	66	0.0	8	0	0	0	5	0.000	0.001	66	0.01	2	-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	-	-	-	-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	26	7	16	3	0	0	26	7	16	3	0	0	39,317	0.0	0.0	931	3.8	615	87	0	0	1,512	0.000	0.003	133	0.24	38	29	-	-
Lighting	43	43					269	269					1,153	0.6	1.2	6,122	-	-	-	-	-	27	0.015	0.028	142	-	-	-	-	-
Refrigerator/Freezer[3]	6	6					6	6					3,165	0.4	0.4	3,236	-	-	-	-	-	527	0.066	0.062	539	-	-	-	-	-
Refrigerator Removal	0	0					0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Refrigerator Exchange	1	1					1	1					585	0.1	0.1	512	-	-	-	-	-	585	0.063	0.059	512	-	-	-	-	-
Freezer Removal	0	0					0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Freezer Exchange	5	5					5	5					2,580	0.3	0.3	2,725	-	-	-	-	-	516	0.067	0.063	545	-	-	-	-	-
Total Non-Efficiency Measures	**49**								**340,508**											**6,949**									
Misc Ins,Attic Access/Vent	48								27,817											580									
Duct Sealing	8								3,240											405									
Duct Insulation	19								3,856											203									
Damming Material	26								2,330											90									
Htg. Sys. Tune & Clean	8								1,337											167									
Htg. Sys./WH Other	9								6,999											778									
Air Conditioning Work	0								0											0									
Water Heater Repair	4								3,798											950									
Refrigerator Coil Clean	0								0											0									
Waterbed Mattress Pad	0								0											0									
Programmable Tstat	0								0											0									
Unspecified Utility Meas	0								0											0									
CO Detector	48								2,606											54									
Smoke Detector	38								594											16									
Fuses	0								0											0									
Htg Sys Safety Check	0								0											0									
Htg Sys Ventilation	39								8,797											226									
Water Heater Ventilation	19								3,617											190									
Bathroom Ventilation	11								1,834											167									
Dryer Ventilation	38								4,523											119									
Kitchen Ventilation	0								0											0									
Other Exhaust Ventilation	35								1,896											54									
Asbestos Removal (Minor)	0								0											0									
Health/Safety Repairs	44								32,298											734									
Health/Safety Other	7								426											61									
Consumables	0								0											0									
General Repairs	49								42,874											875									
Meter Refrig (no action)	47								0											0									
Meter Freezer (no action)	16								0											0									
Support	48								190,359											3,966									
Transportation Allowance	0								0											0									
Landlord Contr Misc	0								0											0									
Landlord Contr Furnace	0								0											0									
Landlord Contr DHW	0								0											0									
Client Contr (Any)	0								0											0									
Lead Safe Work	10								1,306											131									
Unspecifed/Other	0								0											0									

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Hawkeye Area Community Action Program

Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $1,890,812

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $1,890,812

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Dwellings with kWh Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Total Efficiency Measures	**123**	**123**	**110**	**8**	**1**	**0**	**123**	**123**	**970,867**	**20.8**		**20.7**		**82,079**	**240**	**23,515**	**2,229**	**235**	**0**	**7,893**	**0.169**		**0.168**		**667**	**2.18**	**214**	**279**	**235**	**-**
Total Shell & Htg. Sys. Repl	123	123	110	8	1	0	122	123	796,984	16.3	17,284	14.4	22,250	39,534	221	20,274	2,109	235	0	6,480	0.134	142	0.117	181	321	2.01	184	264	235	-
Total Shell Measures	123	123	110	8	1	0	122	123	641,807	16.3	17,284	14.3	21,973	39,258	151	13,911	847	155	0	5,218	0.134	142	0.116	179	319	1.38	126	106	155	-
Wall Insul.	57	49	52	3	1	0	49	1	145,139	5.8	7,020	0.9	1,437	8,457	40	3,720	341	74	0	2,546	0.119	143	0.933	1,437	173	0.78	72	114	74	-
Open Blown Ceiling Insul	81	73	74	3	1	0	73	3	81,848	7.1	8,510	6.3	9,708	18,218	58	5,293	147	44	0	1,010	0.097	117	2.101	3,236	250	0.78	72	49	44	-
Cavity Fill Insul	19	11	18	1	0	0	11	0	24,009	0.5	548	0.0	0	548	11	996	32	0	0	1,264	0.041	50	0.000	0	50	0.60	55	32	-	-
Sloped Attic Insul	24	18	22	0	1	0	18	1	15,741	0.6	763	0.5	773	1,536	7	652	0	19	0	656	0.035	42	0.502	773	85	0.32	30	-	19	-
Kneewall Insul	31	24	28	1	1	0	24	1	15,308	0.5	564	0.1	156	720	4	398	9	4	0	494	0.019	23	0.101	156	30	0.15	14	9	4	-
Infil. Reduction	123	112	110	8	1	0	112	4	133,827	1.6	1,934	0.7	1,138	3,073	23	2,086	219	11	0	1,088	0.014	17	0.185	285	27	0.21	19	27	11	-
Found./Crawl. Insul	58	13	52	3	1	0	12	2	48,890	0.6	751	0.6	869	1,620	13	1,155	139	5	0	843	0.052	63	0.282	435	125	0.24	22	46	5	-
Bandjoist Insul.	62	2	57	2	1	0	-	2	11,687	0.0	0	0.2	357	357	3	260	18	2	0	188	0.000	0	0.116	179	179	0.05	5	9	2	-
Furnace Blower Fan[1]	119	116	110	8	1	0	-	116	0	0.0	0	7.7	11,873	11,873	(1)	(67)	(3)	(0)	0	0	0.000	0	0.066	102	102	(0.01)	(1)	(0)	(0)	-
Exhaust Ventilation[2]	118	118	105	8	1	0	118	118	165,359	-0.3	(2,807)	(2.8)	(4,338)	(7,145)	(6)	(583)	(54)	(4)	0	1,401	-0.003	(24)	(0.024)	(37)	(61)	(0.06)	(6)	(7)	(4)	-
Total Heating System Repl	60	2	52	5	1	0	-	2	155,177	0.0	0	0.2	276	276	69	6,363	1,262	80	0	2,586	0.000	0	0.090	138	138	1.33	122	252	80	-
Condensing Htg Sys Rep	56	0	50	5	1	0	-	-	141,403	0.0	0	0.0	0	0	64	5,906	940	80	0	2,525	-	-	-	-	-	1.29	118	188	80	-
Non-Cond Htg Sys Repl	4	0	3	1	0	0	-	-	6,611	0.0	0	0.0	0	0	5	457	322	0	0	1,653	-	-	-	-	-	1.66	152	322	-	-
Electric Htg Sys Repl	2	2	0	0	0	0	-	2	7,163	0.0	0	0.2	276	276	0	0	0	0	0	3,582	0.000	0	0.090	138	138	-	-	-	-	-
Heat Pump Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-

	Number of Measures Installed by Fuel Type: Total	Electric	Gas	Propane	Fuel Oil	Other		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Water Heating	122	34	85	3	0	0	213	43	164	6	0	0	150,271	0.0	0.0	2,686	19.0	3,241	120	0	0	1,232	0.000	0.001	79	0.223	38	40	-	-
Temp. Reduct.	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Pipe Insul.	122	34	85	3	0	0	122	34	85	3	0	0	2,261	0.0	0.0	1,498	0.8	272	11	0	0	19	0.000	0.000	44	0.01	3	4	-	-
LF Showerhead	1	0	1	0	0	0	1	0	1	0	0	0	10	0.0	0.0	0	0.0	11	0	0	0	10	-	-	-	0.04	11	-	-	-
Faucet Aerator	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	90	9	78	3	0	0	90	9	78	3	0	0	148,000	0.0	0.0	1,188	18.1	2,958	109	0	0	1,644	0.000	0.003	132	0.23	38	36	-	-
Lighting	95	95					648	648					4,738	2.2	4.0	20,853	-	-	-	-	-	50	0.023	0.043	220	-	-	-	-	-
Refrigerator/Freezer[3]	33	33					36	36					18,874	2.3	2.2	19,005	-	-	-	-	-	572	0.071	0.066	576	-	-	-	-	-
Refrigerator Removal	0	0					0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Refrigerator Exchange	26	26					26	26					15,496	1.7	1.6	13,556	-	-	-	-	-	596	0.064	0.060	521	-	-	-	-	-
Freezer Removal	0	0					0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Freezer Exchange	10	10					10	10					3,377	0.7	0.6	5,449	-	-	-	-	-	338	0.067	0.063	545	-	-	-	-	-

Total Non-Efficiency Measures	123	**919,945**	**7,479**
Misc Ins,Attic Access/Vent	98	35,959	367
Duct Sealing	74	21,269	287
Duct Insulation	61	13,691	224
Damming Material	57	2,348	41
Htg. Sys. Tune & Clean	68	6,183	91
Htg. Sys./WH Other	39	17,955	460
Air Conditioning Work	1	85	85
Water Heater Repair	13	1,798	138
Refrigerator Coil Clean	0	0	0
Waterbed Mattress Pad	0	0	0
Programmable Tstat	0	0	0
Unspecified Utility Meas	0	0	0
CO Detector	119	11,576	97
Smoke Detector	95	9,097	96
Fuses	0	0	0
Htg Sys Safety Check	0	0	0
Htg Sys Ventilation	50	8,635	173
Water Heater Ventilation	61	9,268	152
Bathroom Ventilation	5	809	162
Dryer Ventilation	64	6,165	96
Kitchen Ventilation	0	0	0
Other Exhaust Ventilation	0	0	0
Asbestos Removal (Minor)	5	6,855	1,371
Health/Safety Repairs	97	41,410	427
Health/Safety Other	17	1,722	101
Consumables	97	7,718	80
General Repairs	112	108,214	966
Meter Refrig (no action)	81	0	0
Meter Freezer (no action)	24	0	0
Support	123	540,958	4,398
Transportation Allowance	93	15,808	170
Landlord Contr Misc	0	0	0
Landlord Contr Furnace	0	0	0
Landlord Contr DHW	0	0	0
Client Contr (Any)	0	0	0
Lead Safe Work	98	52,423	535
Unspecifed/Other	0	0	0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Community Action of Eastern Iowa

Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $1,702,781

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $1,702,781

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Dwellings with kWh Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Total Efficiency Measures	**125**	**125**	**122**	**1**	**0**	**0**	**125**	**125**	**940,002**	**22.0**		**12.1**		**62,025**	**317**	**30,597**	**335**	**0**	**0**	**7,520**	**0.176**		**0.096**		**496**	**2.60**	**251**	**335**	**-**	**-**
Total Shell & Htg. Sys. Repl	125	125	122	1	0	0	124	125	768,154	19.5	21,896	8.6	13,221	35,117	299	27,524	335	0	0	6,145	0.157	177	0.069	106	281	2.45	226	335	-	-
Total Shell Measures	125	125	122	1	0	0	124	125	422,201	19.5	21,896	8.6	13,221	35,117	144	13,199	168	0	0	3,378	0.157	177	0.069	106	281	1.18	108	168	-	-
Wall Insul.	75	74	74	1	0	0	74	0	126,312	8.7	10,474	0.0	0	10,474	53	4,873	38	0	0	1,684	0.117	142	0.000	0	142	0.72	66	38	-	-
Open Blown Ceiling Insul	80	78	79	1	0	0	78	0	50,746	6.1	7,371	0.0	0	7,371	39	3,604	75	0	0	634	0.078	95	0.000	0	95	0.50	46	75	-	-
Cavity Fill Insul	31	25	31	0	0	0	25	0	16,190	1.3	1,624	0.0	0	1,624	17	1,525	0	0	0	522	0.054	65	0.000	0	65	0.54	49	-	-	-
Sloped Attic Insul	27	26	26	1	0	0	26	0	9,569	1.2	1,391	0.0	0	1,391	10	936	22	0	0	354	0.044	54	0.000	0	54	0.39	36	22	-	-
Kneewall Insul	25	21	24	1	0	0	21	0	11,090	0.4	503	0.0	0	503	4	329	2	0	0	444	0.020	24	0.000	0	24	0.15	14	2	-	-
Infil. Reduction	124	122	122	1	0	0	122	1	116,706	1.6	1,981	0.1	118	2,099	23	2,157	8	0	0	941	0.013	16	0.077	118	17	0.19	18	8	-	-
Found./Crawl. Insul	20	7	19	1	0	0	7	0	6,129	0.4	429	0.0	0	429	1	120	24	0	0	306	0.051	61	0.000	0	61	0.07	6	24	-	-
Bandjoist Insul.	24	0	24	0	0	0	-	0	12,164	0.0	0	0.0	0	0	1	116	0	0	0	507	-	-	-	-	-	0.05	5	-	-	-
Furnace Blower Fan[1]	123	121	122	1	0	0	-	121	0	0.0	0	10.2	15,748	15,748	(1)	(55)	(0)	0	0	0	0.000	0	0.084	130	130	(0.00)	(0)	(0)	-	-
Exhaust Ventilation[2]	80	80	78	0	0	0	80	80	73,295	-0.2	(1,879)	(1.7)	(2,645)	(4,523)	(4)	(407)	0	0	0	916	-0.003	(23)	(0.021)	(33)	(57)	(0.06)	(5)	-	-	-
Total Heating System Repl	93	0	92	1	0	0	-	0	345,953	0.0	0	0.0	0	0	156	14,325	167	0	0	3,720	-	-	-	-	-	1.69	156	167	-	-
Condensing Htg Sys Rep	90	0	89	1	0	0	-	-	311,643	0.0	0	0.0	0	0	123	11,271	167	0	0	3,463	-	-	-	-	-	1.38	127	167	-	-
Non-Cond Htg Sys Repl	21	0	21	0	0	0	-	-	34,310	0.0	0	0.0	0	0	33	3,054	0	0	0	1,634	-	-	-	-	-	1.58	145	-	-	-
Electric Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Heat Pump Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	Total	**Electric**	**Gas**	**Propane**	**Fuel Oil**	**Other**	**Number of Measures Installed by Fuel Type: Total**	**Electric**	**Gas**	**Propane**	**Fuel Oil**	**Other**		**Summer kW**	**Winter kW**	**Annual kWh**	**Pk-Day therms**	**Annual therms**	**Propane gallons**	**Fuel Oil gallons**	**Other Mbtu**		**Summer kW**	**Winter kW**	**Annual kWh**	**Pk-Day therms**	**Annual therms**	**Propane gallons**	**Fuel Oil gallons**	**Other Mbtu**
Water Heating	123	29	94	0	0	0	328	64	264	0	0	0	154,116	0.0	0.1	4,812	17.4	3,073	0	0	0	1,253	0.000	0.003	166	0.185	33	-	-	-
Temp. Reduct.	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Pipe Insul.	115	26	89	0	0	0	115	26	89	0	0	0	2,196	0.0	0.0	1,135	0.7	257	0	0	0	19	0.000	0.000	44	0.01	3	-	-	-
LF Showerhead	23	7	16	0	0	0	24	7	17	0	0	0	240	0.0	0.0	1,225	0.4	115	0	0	0	10	0.000	0.004	175	0.02	7	-	-	-
Faucet Aerator	70	11	59	0	0	0	99	16	83	0	0	0	494	0.0	0.0	526	0.4	112	0	0	0	7	0.000	0.001	48	0.01	2	-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	90	15	75	0	0	0	90	15	75	0	0	0	151,186	0.0	0.0	1,927	15.9	2,590	0	0	0	1,680	0.000	0.003	128	0.21	35	-	-	-
Lighting	93	93					628	628					4,362	1.1	2.1	10,639	-	-	-	-	-	47	0.012	0.022	114	-	-	-	-	-
Refrigerator/Freezer[3]	21	21					22	22					13,370	1.4	1.3	11,456	-	-	-	-	-	637	0.067	0.063	546	-	-	-	-	-
Refrigerator Removal	0	0					0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Refrigerator Exchange	16	16					16	16					10,262	1.0	0.9	8,187	-	-	-	-	-	641	0.063	0.059	512	-	-	-	-	-
Freezer Removal	0	0					0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Freezer Exchange	6	6					6	6					3,108	0.4	0.4	3,269	-	-	-	-	-	518	0.067	0.063	545	-	-	-	-	-
Total Non-Efficiency Measures	125								**762,779**													**6,102**								
Misc Ins,Attic Access/Vent	111								21,498													194								
Duct Sealing	95								14,296													150								
Duct Insulation	77								6,798													88								
Damming Material	58								2,654													46								
Htg. Sys. Tune & Clean	0								0													0								
Htg. Sys./WH Other	24								36,541													1,523								
Air Conditioning Work	0								0													0								
Water Heater Repair	3								396													132								
Refrigerator Coil Clean	0								0													0								
Waterbed Mattress Pad	0								0													0								
Programmable Tstat	71								6,947													98								
Unspecified Utility Meas	0								0													0								
CO Detector	124								11,060													89								
Smoke Detector	110								6,873													62								
Fuses	0								0													0								
Htg Sys Safety Check	0								0													0								
Htg Sys Ventilation	82								13,431													164								
Water Heater Ventilation	65								8,336													128								
Bathroom Ventilation	35								5,033													144								
Dryer Ventilation	97								7,764													80								
Kitchen Ventilation	0								0													0								
Other Exhaust Ventilation	96								4,740													49								
Asbestos Removal (Minor)	3								1,375													458								
Health/Safety Repairs	75								17,448													233								
Health/Safety Other	1								90													90								
Consumables	118								2,924													25								
General Repairs	111								66,189													596								
Meter Refrig (no action)	113								0													0								
Meter Freezer (no action)	41								0													0								
Support	125								498,762													3,990								
Transportation Allowance	69								8,806													128								
Landlord Contr Misc	0								0													0								
Landlord Contr Furnace	0								0													0								
Landlord Contr DHW	0								0													0								
Client Contr (Any)	0								0													0								
Lead Safe Work	74								20,818													281								
Unspecifed/Other	0								0													0								

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

MATURA Action Corporation

Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $162,079

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $162,079

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Dwellings with kWh Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Total Efficiency Measures	**15**	**15**	**11**	**2**	**1**	**0**	**15**	**15**	**79,734**	**2.3**		**1.0**		**4,736**	**15**	**1,425**	**177**	**87**	**0**	**5,316**	**0.156**		**0.064**		**316**	**1.37**	**130**	**89**	**87**	**-**
Total Shell & Htg. Sys. Repl	15	15	11	2	1	0	15	15	58,075	2.3	2,665	0.9	1,302	3,967	14	1,164	177	87	0	3,872	0.152	178	0.060	87	264	1.23	106	89	87	-
Total Shell Measures	15	15	11	2	1	0	15	15	34,550	2.3	2,665	0.9	1,302	3,967	7	605	64	25	0	2,303	0.152	178	0.060	87	264	0.64	55	32	25	-
Wall Insul.	3	3	2	1	0	0	3	0	885	0.6	684	0.0	0	684	1	79	7	0	0	295	0.189	228	0.000	0	228	0.46	39	7	-	-
Open Blown Ceiling Insul	7	7	5	1	0	0	6	1	8,466	0.9	1,121	0.4	510	1,631	1	80	4	0	0	1,209	0.155	187	0.353	510	233	0.18	16	4	-	-
Cavity Fill Insul	1	0	1	0	0	0	0	0	1,447	0.0	0	0.0	0	0	1	79	0	0	0	1,447	-	-	-	-	-	0.92	79	-	-	-
Sloped Attic Insul	1	1	1	0	0	0	1	0	1,107	0.2	203	0.0	0	203	1	87	0	0	0	1,107	0.168	203	0.000	0	203	1.01	87	-	-	-
Kneewall Insul	2	2	2	0	0	0	2	0	322	0.0	27	0.0	0	27	0	8	0	0	0	161	0.011	13	0.000	0	13	0.05	4	-	-	-
Infil. Reduction	15	15	11	2	1	0	14	1	13,908	0.3	350	0.2	217	567	2	212	54	16	0	927	0.021	25	0.150	217	38	0.22	19	27	16	-
Found./Crawl. Insul	8	4	7	0	1	0	4	0	3,585	0.3	381	0.0	0	381	1	75	0	9	0	448	0.079	95	0.000	0	95	0.12	11	-	9	-
Bandjoist Insul.	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Furnace Blower Fan[1]	14	14	11	2	1	0	-	14	0	0.0	0	0.7	1,061	1,061	(0)	(3)	(0)	(0)	0	0	0.000	0	0.052	76	76	(0.00)	(0)	(0)	(0)	-
Exhaust Ventilation[2]	3	3	2	0	0	0	3	3	4,829	0.0	(102)	(0.3)	(485)	(586)	(0)	(10)	0	0	0	1,610	-0.004	(34)	(0.112)	(162)	(195)	(0.06)	(5)	-	-	-
Total Heating System Repl	7	0	5	1	1	0	-	0	23,525	0.0	0	0.0	0	0	6	559	113	62	0	3,361	-	-	-	-	-	1.30	112	113	62	-
Condensing Htg Sys Rep	7	0	5	1	1	0	-	-	23,525	0.0	0	0.0	0	0	6	559	113	62	0	3,361	-	-	-	-	-	1.30	112	113	62	-
Non-Cond Htg Sys Repl	0	0	0	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Electric Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Heat Pump Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	Number of Measures Installed by Fuel Type: Total	Electric	Gas	Propane	Fuel Oil	Other				Summer kW		Winter kW		Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu		Summer kW		Winter kW		Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Water Heating	13	4	9	0	0	0	18	4	14	0	0	0	20,790	0.0		0.0		257	1.5	261	0	0	0	1,599	0.000		0.001		64	0.171	29	-	-	-
Temp. Reduct.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0		0.0		0	0.0	0	0	0	0	-		-		-	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0		0.0		0	0.0	0	0	0	0	-		-		-	-	-	-	-	-
Pipe Insul.	10	3	7	0	0	0	10	3	7	0	0	0	190	0.0		0.0		128	0.1	20	0	0	0	19	0.000		0.000		43	0.01	3	-	-	-
LF Showerhead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0		0.0		0	0.0	0	0	0	0	-		-		-	-	-	-	-	-
Faucet Aerator	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0		0.0		0	0.0	0	0	0	0	-		-		-	-	-	-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0		0.0		0	0.0	0	0	0	0	-		-		-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	8	1	7	0	0	0	8	1	7	0	0	0	20,600	0.0		0.0		128	1.5	241	0	0	0	2,575	0.000		0.003		128	0.21	34	-	-	-
Lighting	0	0					0	0					0	0.0		0.0		0	-	-	-	-	-	0	-		-		-	-	-	-	-	-
Refrigerator/Freezer[3]	1	1					1	1					869	0.1		0.1		512	-	-	-	-	-	869	0.063		0.059		512	-	-	-	-	-
Refrigerator Removal	0	0					0	0					0	0.0		0.0		0	-	-	-	-	-	0	-		-		-	-	-	-	-	-
Refrigerator Exchange	1	1					1	1					869	0.1		0.1		512	-	-	-	-	-	869	0.063		0.059		512	-	-	-	-	-
Freezer Removal	0	0					0	0					0	0.0		0.0		0	-	-	-	-	-	0	-		-		-	-	-	-	-	-
Freezer Exchange	0	0					0	0					0	0.0		0.0		0	-	-	-	-	-	0	-		-		-	-	-	-	-	-
Total Non-Efficiency Measures	15								**82,346**											**5,490**										
Misc Ins,Attic Access/Vent	13								3,147											242										
Duct Sealing	0								0											0										
Duct Insulation	0								0											0										
Damming Material	1								55											55										
Htg. Sys. Tune & Clean	3								1,525											508										
Htg. Sys./WH Other	2								1,907											953										
Air Conditioning Work	0								0											0										
Water Heater Repair	1								125											125										
Refrigerator Coil Clean	0								0											0										
Waterbed Mattress Pad	0								0											0										
Programmable Tstat	0								0											0										
Unspecified Utility Meas	0								0											0										
CO Detector	11								368											33										
Smoke Detector	10								455											46										
Fuses	0								0											0										
Htg Sys Safety Check	0								0											0										
Htg Sys Ventilation	8								3,000											375										
Water Heater Ventilation	7								2,250											321										
Bathroom Ventilation	4								2,704											676										
Dryer Ventilation	3								400											133										
Kitchen Ventilation	0								0											0										
Other Exhaust Ventilation	0								0											0										
Asbestos Removal (Minor)	0								0											0										
Health/Safety Repairs	11								7,067											642										
Health/Safety Other	0								0											0										
Consumables	0								0											0										
General Repairs	14								14,811											1,058										
Meter Refrig (no action)	7								0											0										
Meter Freezer (no action)	3								0											0										
Support	15								43,796											2,920										
Transportation Allowance	0								0											0										
Landlord Contr Misc	0								0											0										
Landlord Contr Furnace	0								0											0										
Landlord Contr DHW	0								0											0										
Client Contr (Any)	0								0											0										
Lead Safe Work	3								737											246										
Unspecifed/Other	0								0											0										

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Mid-Iowa Community Action

Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $1,339,403

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $1,339,403

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Dwellings with kWh Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Total Efficiency Measures	**97**	**97**	**84**	**7**	**0**	**0**	**96**	**97**	**727,080**	**20.2**		**14.2**		**56,947**	**192**	**18,608**	**2,110**	**0**	**0**	**7,496**	**0.210**		**0.146**		**587**	**2.29**	**222**	**301**	**-**	**-**
Total Shell & Htg. Sys. Repl	97	97	84	7	0	0	96	97	634,547	18.4	20,463	12.0	18,702	39,165	182	17,003	2,000	0	0	6,542	0.192	213	0.123	193	404	2.17	202	286	-	-
Total Shell Measures	97	97	84	7	0	0	96	97	470,737	18.4	20,463	11.7	18,302	38,765	110	10,258	1,432	0	0	4,853	0.192	213	0.121	189	400	1.31	122	205	-	-
Wall Insul.	65	63	57	6	0	0	63	2	145,700	7.7	9,234	1.2	1,920	11,154	46	4,326	665	0	0	2,242	0.122	147	0.615	960	177	0.81	76	111	-	-
Open Blown Ceiling Insul	75	72	66	5	0	0	72	4	63,789	5.6	6,736	3.1	4,915	11,651	20	1,893	237	0	0	851	0.078	94	0.787	1,229	162	0.31	29	47	-	-
Cavity Fill Insul	25	21	23	1	0	0	21	1	22,581	1.2	1,395	1.6	2,458	3,853	12	1,092	120	0	0	903	0.055	66	1.574	2,458	183	0.51	47	120	-	-
Sloped Attic Insul	31	29	28	3	0	0	29	0	18,022	1.5	1,826	0.0	0	1,826	11	990	127	0	0	581	0.052	63	0.000	0	63	0.38	35	42	-	-
Kneewall Insul	28	24	24	3	0	0	24	1	12,938	0.5	580	0.1	171	750	3	235	56	0	0	462	0.020	24	0.109	171	31	0.11	10	19	-	-
Infil. Reduction	96	93	84	7	0	0	93	5	115,191	1.3	1,596	0.4	561	2,157	14	1,303	120	0	0	1,200	0.014	17	0.072	112	23	0.17	16	17	-	-
Found./Crawl. Insul	45	18	40	4	0	0	18	1	22,616	0.9	1,145	0.0	24	1,169	7	656	119	0	0	503	0.053	64	0.015	24	65	0.18	16	30	-	-
Bandjoist Insul.	51	2	44	5	0	0	-	2	7,323	0.0	0	0.2	326	326	2	188	24	0	0	144	0.000	0	0.104	163	163	0.05	4	5	-	-
Furnace Blower Fan[1]	91	91	84	7	0	0	-	91	0	0.0	0	7.6	11,889	11,889	(0)	(41)	(6)	0	0	0	0.000	0	0.084	131	131	(0.01)	(0)	(1)	-	-
Exhaust Ventilation[2]	83	83	73	5	0	0	83	83	62,578	-0.3	(2,048)	(2.5)	(3,963)	(6,011)	(4)	(384)	(31)	0	0	754	-0.003	(25)	(0.031)	(48)	(72)	(0.06)	(5)	(6)	-	-
Total Heating System Repl	67	3	60	4	0	0	-	3	163,809	0.0	0	0.3	400	400	72	6,745	567	0	0	2,445	0.000	0	0.085	133	133	1.21	112	142	-	-
Condensing Htg Sys Rep	59	0	56	3	0	0	-	-	139,847	0.0	0	0.0	0	0	68	6,379	401	0	0	2,370	-	-	-	-	-	1.22	114	134	-	-
Non-Cond Htg Sys Repl	5	0	4	1	0	0	-	-	8,914	0.0	0	0.0	0	0	4	366	166	0	0	1,783	-	-	-	-	-	0.98	91	166	-	-
Electric Htg Sys Repl	1	1	0	0	0	0	-	1	4,946	0.0	0	0.1	162	162	0	0	0	0	0	4,946	0.000	0	0.104	162	162	-	-	-	-	-
Heat Pump Repl	2	2	0	0	0	0	-	2	10,102	0.0	0	0.2	238	238	0	0	0	0	0	5,051	0.000	0	0.076	119	119	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-

	Number of Measures Installed by Fuel Type: Total	Electric	Gas	Propane	Fuel Oil	Other	Spending on Materials & Labor ($)	Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Spending on Materials & Labor ($)	Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Water Heating	82	29	49	4	0	0	81,974	0.0	0.0	2,850	9.5	1,605	110	0	0	1,000	0.000	0.002	98	0.194	33	28	-	-
Temp. Reduct.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Pipe Insul.	55	23	30	2	0	0	242	0.0	0.0	1,027	0.2	85	6	0	0	4	0.000	0.000	45	0.01	3	3	-	-
LF Showerhead	3	1	2	0	0	0	13	0.0	0.0	218	0.0	14	0	0	0	4	0.000	0.005	218	0.02	7	-	-	-
Faucet Aerator	4	0	4	0	0	0	9	0.0	0.0	0	0.0	5	0	0	0	2	-	-	-	0.00	1	-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	59	12	44	3	0	0	81,710	0.0	0.0	1,605	9.2	1,500	104	0	0	1,385	0.000	0.003	134	0.21	34	35	-	-
Lighting	42	42					704	0.6	1.1	5,421	-	-	-	-	-	17	0.014	0.025	129	-	-	-	-	-
Refrigerator/Freezer[3]	15	15					9,855	1.2	1.1	9,511	-	-	-	-	-	657	0.078	0.073	634	-	-	-	-	-
Refrigerator Removal	1	1					15	0.1	0.1	512	-	-	-	-	-	15	0.063	0.059	512	-	-	-	-	-
Refrigerator Exchange	11	11					7,515	0.8	0.7	6,140	-	-	-	-	-	683	0.069	0.064	558	-	-	-	-	-
Freezer Removal	0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Freezer Exchange	5	5					2,325	0.4	0.3	2,859	-	-	-	-	-	465	0.070	0.066	572	-	-	-	-	-

Total Non-Efficiency Measures	97	**612,323**		**6,313**
Misc Ins,Attic Access/Vent	90	45,517		506
Duct Sealing	24	3,696		154
Duct Insulation	54	7,658		142
Damming Material	64	5,290		83
Htg. Sys. Tune & Clean	29	3,819		132
Htg. Sys./WH Other	15	9,239		616
Air Conditioning Work	0	0		0
Water Heater Repair	16	575		36
Refrigerator Coil Clean	0	0		0
Waterbed Mattress Pad	0	0		0
Programmable Tstat	0	0		0
Unspecified Utility Meas	0	0		0
CO Detector	90	4,868		54
Smoke Detector	49	1,732		35
Fuses	0	0		0
Htg Sys Safety Check	0	0		0
Htg Sys Ventilation	66	10,448		158
Water Heater Ventilation	48	4,472		93
Bathroom Ventilation	20	4,027		201
Dryer Ventilation	50	5,830		117
Kitchen Ventilation	0	0		0
Other Exhaust Ventilation	0	0		0
Asbestos Removal (Minor)	0	0		0
Health/Safety Repairs	75	46,243		617
Health/Safety Other	5	570		114
Consumables	0	0		0
General Repairs	92	76,936		836
Meter Refrig (no action)	78	0		0
Meter Freezer (no action)	18	0		0
Support	97	358,098		3,692
Transportation Allowance	0	0		0
Landlord Contr Misc	1	(2,000)		-2,000
Landlord Contr Furnace	0	0		0
Landlord Contr DHW	0	0		0
Client Contr (Any)	0	0		0
Lead Safe Work	66	25,305		383
Unspecifed/Other	0	0		0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Mid-Sioux Opportunity

Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $448,386

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $448,386

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Dwellings with kWh Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Total Efficiency Measures	**37**	**37**	**32**	**3**	**0**	**0**	**37**	**37**	**262,794**	**10.2**		**7.0**		**32,675**	**67**	**6,416**	**650**	**0**	**0**	**7,103**	**0.275**		**0.190**		**883**	**2.09**	**201**	**217**	**-**	**-**
Total Shell & Htg. Sys. Repl	37	37	32	3	0	0	37	37	225,664	8.7	9,741	4.4	6,689	16,431	63	5,735	650	0	0	6,099	0.234	263	0.118	181	444	1.96	179	217	-	-
Total Shell Measures	37	37	32	3	0	0	37	37	159,633	8.7	9,741	4.3	6,569	16,310	36	3,322	314	0	0	4,314	0.234	263	0.116	178	441	1.14	104	105	-	-
Wall Insul.	24	24	23	1	0	0	24	0	60,242	3.6	4,294	0.0	0	4,294	18	1,671	101	0	0	2,510	0.148	179	0.000	0	179	0.80	73	101	-	-
Open Blown Ceiling Insul	30	30	27	2	0	0	30	1	20,840	2.8	3,433	2.3	3,562	6,995	6	519	10	0	0	695	0.095	114	2.330	3,562	233	0.21	19	5	-	-
Cavity Fill Insul	15	12	12	2	0	0	12	1	14,371	0.9	1,093	0.2	312	1,405	5	444	144	0	0	958	0.076	91	0.204	312	117	0.41	37	72	-	-
Sloped Attic Insul	9	9	9	0	0	0	9	0	5,821	0.6	677	0.0	0	677	3	318	0	0	0	647	0.062	75	0.000	0	75	0.39	35	-	-	-
Kneewall Insul	9	6	8	1	0	0	6	0	3,456	0.1	154	0.0	0	154	1	135	16	0	0	384	0.021	26	0.000	0	26	0.18	17	16	-	-
Infil. Reduction	37	37	32	3	0	0	37	2	18,029	0.7	828	0.1	115	943	3	231	29	0	0	487	0.019	22	0.038	58	25	0.08	7	10	-	-
Found./Crawl. Insul	9	1	7	2	0	0	1	0	6,356	0.1	76	0.0	0	76	1	64	17	0	0	706	0.063	76	0.000	0	76	0.10	9	8	-	-
Bandjoist Insul.	16	0	13	3	0	0	-	0	4,995	0.0	0	0.0	0	0	1	95	15	0	0	312	-	-	-	-	-	0.08	7	5	-	-
Furnace Blower Fan[1]	35	35	32	3	0	0	-	35	0	0.0	0	2.7	4,160	4,160	(0)	(14)	(1)	0	0	0	0.000	0	0.078	119	119	(0.00)	(0)	(0)	-	-
Exhaust Ventilation[2]	33	33	28	3	0	0	33	33	25,524	-0.1	(815)	(1.0)	(1,581)	(2,395)	(2)	(142)	(17)	0	0	773	-0.003	(25)	(0.031)	(48)	(73)	(0.06)	(5)	(6)	-	-
Total Heating System Repl	25	1	22	2	0	0	-	1	66,031	0.0	0	0.1	121	121	26	2,413	336	0	0	2,641	0.000	0	0.079	121	121	1.20	110	168	-	-
Condensing Htg Sys Rep	24	0	22	2	0	0	-	-	60,799	0.0	0	0.0	0	0	26	2,413	336	0	0	2,533	-	-	-	-	-	1.20	110	168	-	-
Non-Cond Htg Sys Repl	0	0	0	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Electric Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Heat Pump Repl	1	1	0	0	0	0	-	1	5,232	0.0	0	0.1	121	121	0	0	0	0	0	5,232	0.000	0	0.079	121	121	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	Number of Measures Installed by Fuel Type: Total	Electric	Gas	Propane	Fuel Oil	Other				Summer kW		Winter kW		Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu		Summer kW		Winter kW		Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Water Heating	37	17	20	0	0	0	76	28	48	0	0	0	31,692	0.0		0.0		2,095	3.9	682	0	0	0	857	0.000		0.002		123	0.194	34	-	-	-
Temp. Reduct.	2	2	0	0	0	0	2	2	0	0	0	0	0	0.0		0.0		259	0.0	0	0	0	0	0	0.000		0.000		129	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0		0.0		0	0.0	0	0	0	0	0	-		-		-	-	-	-	-	-
Pipe Insul.	34	15	19	0	0	0	34	15	19	0	0	0	630	0.0		0.0		663	0.2	54	0	0	0	19	0.000		0.000		44	0.01	3	-	-	-
LF Showerhead	6	1	5	0	0	0	7	1	6	0	0	0	78	0.0		0.0		175	0.1	35	0	0	0	13	0.000		0.004		175	0.02	7	-	-	-
Faucet Aerator	5	2	3	0	0	0	8	3	5	0	0	0	30	0.0		0.0		99	0.0	7	0	0	0	6	0.000		0.001		49	0.01	2	-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0		0.0		0	0.0	0	0	0	0	0	-		-		-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	25	7	18	0	0	0	25	7	18	0	0	0	30,954	0.0		0.0		899	3.6	586	0	0	0	1,238	0.000		0.003		128	0.20	33	-	-	-
Lighting	31	31					424	424					2,688	1.3		2.4		12,614	-	-	-	-	-	87	0.043		0.079		407	-	-	-	-	-
Refrigerator/Freezer[3]	3	3					3	3					2,750	0.2		0.2		1,535	-	-	-	-	-	917	0.063		0.059		512	-	-	-	-	-
Refrigerator Removal	0	0					0	0					0	0.0		0.0		0	-	-	-	-	-	0	-		-		-	-	-	-	-	-
Refrigerator Exchange	3	3					3	3					2,750	0.2		0.2		1,535	-	-	-	-	-	917	0.063		0.059		512	-	-	-	-	-
Freezer Removal	0	0					0	0					0	0.0		0.0		0	-	-	-	-	-	0	-		-		-	-	-	-	-	-
Freezer Exchange	0	0					0	0					0	0.0		0.0		0	-	-	-	-	-	0	-		-		-	-	-	-	-	-
Total Non-Efficiency Measures	37								**185,591**											**5,016**										
Misc Ins,Attic Access/Vent	36								5,855											163										
Duct Sealing	4								240											60										
Duct Insulation	26								2,286											88										
Damming Material	15								477											32										
Htg. Sys. Tune & Clean	11								2,530											230										
Htg. Sys./WH Other	11								6,671											606										
Air Conditioning Work	0								0											0										
Water Heater Repair	16								897											56										
Refrigerator Coil Clean	0								0											0										
Waterbed Mattress Pad	0								0											0										
Programmable Tstat	0								0											0										
Unspecified Utility Meas	0								0											0										
CO Detector	35								2,710											77										
Smoke Detector	30								1,823											61										
Fuses	0								0											0										
Htg Sys Safety Check	0								0											0										
Htg Sys Ventilation	25								3,351											134										
Water Heater Ventilation	16								2,130											133										
Bathroom Ventilation	3								315											105										
Dryer Ventilation	19								1,795											94										
Kitchen Ventilation	0								0											0										
Other Exhaust Ventilation	18								1,010											56										
Asbestos Removal (Minor)	0								0											0										
Health/Safety Repairs	10								11,044											1,104										
Health/Safety Other	1								20											20										
Consumables	0								0											0										
General Repairs	35								13,432											384										
Meter Refrig (no action)	31								0											0										
Meter Freezer (no action)	14								0											0										
Support	37								123,282											3,332										
Transportation Allowance	0								0											0										
Landlord Contr Misc	0								0											0										
Landlord Contr Furnace	0								0											0										
Landlord Contr DHW	0								0											0										
Client Contr (Any)	0								0											0										
Lead Safe Work	22								5,723											260										
Unspecifed/Other	0								0											0										

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

North Iowa Community Action Organization

Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $1,171,748

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $1,171,748

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Dwellings with kWh Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Total Efficiency Measures	**89**	**89**	**82**	**3**	**0**	**1**	**88**	**89**	**663,241**	**19.8**		**30.4**		**108,508**	**243**	**25,145**	**1,342**	**0**	**16**	**7,452**	**0.225**		**0.341**		**1,219**	**2.97**	**307**	**447**	**-**	**16**
Total Shell & Htg. Sys. Repl	89	89	82	3	0	1	86	89	534,457	13.6	14,889	21.8	35,942	50,832	229	22,588	1,342	0	16	6,005	0.159	173	0.244	404	571	2.79	275	447	-	16
Total Shell Measures	89	89	82	3	0	1	86	89	407,036	13.6	14,889	21.5	35,606	50,496	162	15,947	989	0	16	4,573	0.159	173	0.242	400	567	1.97	194	330	-	16
Wall Insul.	69	57	63	3	0	0	55	3	180,505	5.7	6,831	5.0	8,266	15,097	58	5,713	441	0	0	2,616	0.103	124	1.667	2,755	265	0.92	91	147	-	-
Open Blown Ceiling Insul	86	72	79	3	0	1	70	3	43,105	5.1	6,126	6.8	11,247	17,373	63	6,209	193	0	7	501	0.073	88	2.269	3,749	241	0.80	79	64	-	7
Cavity Fill Insul	22	16	20	2	0	0	16	0	20,623	0.5	604	0.0	0	604	9	842	143	0	0	937	0.031	38	0.000	0	38	0.43	42	71	-	-
Sloped Attic Insul	42	33	39	2	0	1	33	0	31,526	1.2	1,505	0.0	0	1,505	18	1,816	84	0	6	751	0.038	46	0.000	0	46	0.47	47	42	-	6
Kneewall Insul	23	17	20	2	0	1	17	0	14,881	0.3	387	0.0	0	387	5	475	45	0	3	647	0.019	23	0.000	0	23	0.24	24	23	-	3
Infil. Reduction	88	73	81	3	0	1	71	3	37,278	0.9	1,060	0.5	780	1,840	9	865	71	0	0	424	0.012	15	0.157	260	25	0.11	11	24	-	0
Found./Crawl. Insul	40	4	36	2	0	1	4	1	10,885	0.2	223	0.2	401	623	3	321	13	0	1	272	0.046	56	0.242	401	156	0.09	9	6	-	1
Bandjoist Insul.	24	3	19	2	0	0	-	3	3,855	0.0	0	0.5	747	747	1	130	19	0	0	161	0.000	0	0.151	249	249	0.07	7	9	-	-
Furnace Blower Fan[1]	86	86	82	3	0	1	-	86	0	0.0	0	10.4	17,158	17,158	(1)	(69)	(2)	0	(0)	0	0.000	0	0.121	200	200	(0.01)	(1)	(1)	-	(0)
Exhaust Ventilation[2]	77	77	70	3	0	1	77	77	64,378	-0.2	(1,845)	(1.8)	(2,993)	(4,838)	(4)	(354)	(17)	0	(1)	836	-0.003	(24)	(0.024)	(39)	(63)	(0.05)	(5)	(6)	-	(1)
Total Heating System Repl	52	2	48	2	0	0	-	2	127,421	0.0	0	0.2	336	336	67	6,641	353	0	0	2,450	0.000	0	0.102	168	168	1.40	138	177	-	-
Condensing Htg Sys Rep	50	0	48	2	0	0	-	-	103,583	0.0	0	0.0	0	0	54	5,283	353	0	0	2,072	-	-	-	-	-	1.12	110	177	-	-
Non-Cond Htg Sys Repl	11	0	11	0	0	0	-	-	16,500	0.0	0	0.0	0	0	14	1,358	0	0	0	1,500	-	-	-	-	-	1.25	123	-	-	-
Electric Htg Sys Repl	2	2	0	0	0	0	-	2	7,338	0.0	0	0.2	336	336	0	0	0	0	0	3,669	0.000	0	0.102	168	168	-	-	-	-	-
Heat Pump Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-

	Number of Measures Installed by Fuel Type: Total	Electric	Gas	Propane	Fuel Oil	Other		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Water Heating	87	18	69	0	0	0	88,710	0.0	0.1	3,239	14.2	2,557	0	0	0	1,020	0.000	0.003	180	0.206	37	-	-	-
Temp. Reduct.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Pipe Insul.	83	17	66	0	0	0	356	0.0	0.0	749	0.5	188	0	0	0	4	0.000	0.000	44	0.01	3	-	-	-
LF Showerhead	34	6	28	0	0	0	105	0.0	0.0	1,093	0.6	193	0	0	0	3	0.000	0.004	182	0.02	7	-	-	-
Faucet Aerator	70	13	57	0	0	0	53	0.0	0.0	722	0.4	108	0	0	0	1	0.000	0.001	56	0.01	2	-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	70	5	65	0	0	0	88,196	0.0	0.0	674	12.7	2,067	0	0	0	1,260	0.000	0.003	135	0.19	32	-	-	-
Lighting	76	76					4,821	3.0	5.6	28,890	-	-	-	-	-	63	0.040	0.074	380	-	-	-	-	-
Refrigerator/Freezer[3]	38	38					35,253	3.1	2.9	25,547	-	-	-	-	-	928	0.083	0.077	672	-	-	-	-	-
Refrigerator Removal	1	1					25	0.1	0.1	512	-	-	-	-	-	25	0.063	0.059	512	-	-	-	-	-
Refrigerator Exchange	33	33					29,477	2.1	2.0	17,138	-	-	-	-	-	893	0.064	0.060	519	-	-	-	-	-
Freezer Removal	3	3					80	0.2	0.2	1,769	-	-	-	-	-	27	0.073	0.068	590	-	-	-	-	-
Freezer Exchange	11	11					5,672	0.8	0.7	6,128	-	-	-	-	-	516	0.069	0.064	557	-	-	-	-	-

Total Non-Efficiency Measures	89	**508,507**	**5,714**
Misc Ins,Attic Access/Vent	87	15,236	175
Duct Sealing	0	0	0
Duct Insulation	0	0	0
Damming Material	67	4,964	74
Htg. Sys. Tune & Clean	35	2,914	83
Htg. Sys./WH Other	54	20,249	375
Air Conditioning Work	0	0	0
Water Heater Repair	1	150	150
Refrigerator Coil Clean	0	0	0
Waterbed Mattress Pad	0	0	0
Programmable Tstat	0	0	0
Unspecified Utility Meas	0	0	0
CO Detector	88	8,360	95
Smoke Detector	87	7,148	82
Fuses	0	0	0
Htg Sys Safety Check	0	0	0
Htg Sys Ventilation	37	5,656	153
Water Heater Ventilation	50	4,623	92
Bathroom Ventilation	16	3,229	202
Dryer Ventilation	46	6,143	134
Kitchen Ventilation	0	0	0
Other Exhaust Ventilation	0	0	0
Asbestos Removal (Minor)	0	0	0
Health/Safety Repairs	40	6,486	162
Health/Safety Other	0	0	0
Consumables	88	3,505	40
General Repairs	85	47,022	553
Meter Refrig (no action)	42	0	0
Meter Freezer (no action)	17	0	0
Support	88	338,934	3,852
Transportation Allowance	0	0	0
Landlord Contr Misc	0	0	0
Landlord Contr Furnace	0	0	0
Landlord Contr DHW	0	0	0
Client Contr (Any)	0	0	0
Lead Safe Work	84	33,889	403
Unspecifed/Other	0	0	0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Northeast Iowa Community Action Corporation

Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $725,184

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $725,184

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Dwellings with kWh Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Total Efficiency Measures	**92**	**92**	**64**	**19**	**0**	**1**	**92**	**92**	**439,575**	**15.0**		**16.6**		**51,735**	**100**	**9,714**	**4,899**	**0**	**18**	**4,778**	**0.163**		**0.181**		**562**	**1.56**	**152**	**258**	**-**	**18**
Total Shell & Htg. Sys. Repl	92	92	64	19	0	1	89	92	383,132	13.8	15,137	15.0	23,448	38,585	95	8,838	4,751	0	18	4,164	0.155	170	0.163	255	419	1.48	138	250	-	18
Total Shell Measures	92	92	64	19	0	1	89	92	197,041	13.8	15,137	14.7	22,940	38,076	51	4,757	2,296	0	8	2,142	0.155	170	0.160	249	414	0.80	74	121	-	8
Wall Insul.	40	34	29	9	0	0	34	2	26,186	4.1	4,928	1.7	2,620	7,548	22	2,021	976	0	0	655	0.120	145	0.839	1,310	222	0.75	70	108	-	-
Open Blown Ceiling Insul	76	70	54	15	0	1	70	6	33,588	6.5	7,794	2.8	4,410	12,205	9	874	517	0	1	442	0.092	111	0.471	735	174	0.17	16	34	-	1
Cavity Fill Insul	9	7	7	2	0	0	7	0	4,300	0.4	500	0.0	0	500	4	396	101	0	0	478	0.059	71	0.000	0	71	0.61	57	51	-	-
Sloped Attic Insul	12	11	10	1	0	0	11	1	3,246	0.7	847	0.9	1,409	2,256	4	378	27	0	0	271	0.064	77	0.903	1,409	205	0.41	38	27	-	-
Kneewall Insul	18	16	12	3	0	0	15	3	16,979	0.8	976	2.7	4,160	5,136	2	208	302	0	0	943	0.054	65	0.888	1,387	321	0.19	17	101	-	-
Infil. Reduction	90	82	62	19	0	1	82	8	51,920	1.1	1,270	3.0	4,670	5,940	10	896	374	0	4	577	0.013	15	0.374	584	72	0.16	14	20	-	4
Found./Crawl. Insul	19	11	12	3	0	1	10	3	8,650	0.5	643	1.0	1,485	2,128	1	121	54	0	3	455	0.053	64	0.317	495	193	0.11	10	18	-	3
Bandjoist Insul.	34	4	22	8	0	0	-	4	10,634	0.0	0	0.6	899	899	2	145	51	0	0	313	0.000	0	0.144	225	225	0.07	7	6	-	-
Furnace Blower Fan[1]	84	83	64	19	0	1	-	83	0	0.0	0	4.5	7,023	7,023	(0)	(23)	(8)	0	(0)	0	0.000	0	0.054	85	85	(0.00)	(0)	(0)	-	(0)
Exhaust Ventilation[2]	73	73	51	17	0	0	73	73	41,538	-0.2	(1,822)	(2.4)	(3,736)	(5,558)	(3)	(258)	(97)	0	0	569	-0.003	(25)	(0.033)	(51)	(76)	(0.05)	(5)	(6)	-	-
Total Heating System Repl	54	2	36	15	0	1	-	2	186,091	0.0	0	0.3	508	508	44	4,080	2,455	0	10	3,446	0.000	0	0.163	254	254	1.22	113	164	-	10
Condensing Htg Sys Rep	51	0	36	14	0	1	-	-	181,319	0.0	0	0.0	0	0	44	4,080	2,324	0	10	3,555	-	-	-	-	-	1.22	113	166	-	10
Non-Cond Htg Sys Repl	1	0	0	1	0	0	-	-	2,357	0.0	0	0.0	0	0	0	0	131	0	0	2,357	-	-	-	-	-	-	-	131	-	-
Electric Htg Sys Repl	1	1	0	0	0	0	-	1	2,200	0.0	0	0.1	129	129	0	0	0	0	0	2,200	0.000	0	0.083	129	129	-	-	-	-	-
Heat Pump Repl	1	1	0	0	0	0	-	1	215	0.0	0	0.2	379	379	0	0	0	0	0	215	0.000	0	0.243	379	379	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-

	Number of Measures Installed by Fuel Type: Total	Electric	Gas	Propane	Fuel Oil	Other		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Water Heating	86	39	42	5	0	0	49,384	0.0	0.0	3,136	5.0	876	148	0	0	574	0.000	0.001	80	0.119	21	30	-	-
Temp. Reduct.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Pipe Insul.	83	38	40	5	0	0	758	0.0	0.0	1,691	0.3	114	16	0	0	9	0.000	0.000	44	0.01	3	3	-	-
LF Showerhead	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Faucet Aerator	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	37	11	23	3	0	0	48,626	0.0	0.0	1,445	4.7	762	132	0	0	1,314	0.000	0.003	131	0.20	33	44	-	-
Lighting	44	44					715	0.6	1.0	5,251	-	-	-	-	-	16	0.013	0.023	119	-	-	-	-	-
Refrigerator/Freezer[3]	8	8					6,344	0.6	0.5	4,765	-	-	-	-	-	793	0.073	0.068	596	-	-	-	-	-
Refrigerator Removal	1	1					40	0.1	0.1	512	-	-	-	-	-	40	0.063	0.059	512	-	-	-	-	-
Refrigerator Exchange	7	7					5,449	0.5	0.4	3,708	-	-	-	-	-	778	0.065	0.061	530	-	-	-	-	-
Freezer Removal	0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Freezer Exchange	1	1					855	0.1	0.1	545	-	-	-	-	-	855	0.067	0.063	545	-	-	-	-	-

Total Non-Efficiency Measures	92	**285,609**		**3,104**
Misc Ins,Attic Access/Vent	31	2,047		66
Duct Sealing	0	0		0
Duct Insulation	3	584		195
Damming Material	0	0		0
Htg. Sys. Tune & Clean	14	2,214		158
Htg. Sys./WH Other	6	5,550		925
Air Conditioning Work	0	0		0
Water Heater Repair	14	1,415		101
Refrigerator Coil Clean	0	0		0
Waterbed Mattress Pad	0	0		0
Programmable Tstat	0	0		0
Unspecified Utility Meas	0	0		0
CO Detector	77	3,101		40
Smoke Detector	22	280		13
Fuses	0	0		0
Htg Sys Safety Check	0	0		0
Htg Sys Ventilation	51	15,261		299
Water Heater Ventilation	25	3,675		147
Bathroom Ventilation	38	5,895		155
Dryer Ventilation	58	6,508		112
Kitchen Ventilation	0	0		0
Other Exhaust Ventilation	4	160		40
Asbestos Removal (Minor)	0	0		0
Health/Safety Repairs	30	4,826		161
Health/Safety Other	0	0		0
Consumables	4	20		5
General Repairs	72	22,608		314
Meter Refrig (no action)	45	0		0
Meter Freezer (no action)	6	0		0
Support	92	201,550		2,191
Transportation Allowance	56	6,699		120
Landlord Contr Misc	0	0		0
Landlord Contr Furnace	0	0		0
Landlord Contr DHW	0	0		0
Client Contr (Any)	0	0		0
Lead Safe Work	33	3,217		97
Unspecifed/Other	0	0		0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Operation: New View Community Action Agency

Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $359,401

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $359,401

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Dwellings with kWh Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Gas Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Gas Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Total Efficiency Measures	**35**	**35**	**26**	**7**	**1**	**0**	**35**	**35**	**201,828**	**6.6**		**8.0**		**35,442**	**59**	**5,726**	**1,308**	**214**	**0**	**5,767**	**0.188**		**0.227**		**1,013**	**2.29**	**220**	**187**	**214**	**-**
Total Shell & Htg. Sys. Repl	35	35	26	7	1	0	33	35	154,505	3.9	4,316	4.0	6,196	10,512	56	5,161	1,269	214	0	4,414	0.118	131	0.115	177	300	2.16	198	181	214	-
Total Shell Measures	35	35	26	7	1	0	33	35	75,377	3.9	4,316	4.0	6,196	10,512	30	2,753	822	105	0	2,154	0.118	131	0.115	177	300	1.15	106	117	105	-
Wall Insul.	13	10	9	2	1	0	10	1	11,255	1.2	1,462	0.9	1,379	2,841	5	505	32	52	0	866	0.121	146	0.895	1,379	284	0.61	56	16	52	-
Open Blown Ceiling Insul	22	19	16	5	0	0	19	1	14,531	1.8	2,152	1.5	2,289	4,441	10	941	291	0	0	660	0.094	113	1.486	2,289	234	0.64	59	58	-	-
Cavity Fill Insul	8	2	6	1	1	0	2	0	7,582	0.1	98	0.0	0	98	5	464	166	49	0	948	0.041	49	0.000	0	49	0.84	77	166	49	-
Sloped Attic Insul	8	6	6	2	0	0	6	0	5,053	0.3	378	0.0	0	378	3	299	127	0	0	632	0.052	63	0.000	0	63	0.54	50	63	-	-
Kneewall Insul	8	5	6	2	0	0	5	0	1,315	0.1	101	0.0	0	101	1	49	41	0	0	164	0.017	20	0.000	0	20	0.09	8	21	-	-
Infil. Reduction	34	30	25	7	1	0	30	1	14,190	0.4	516	0.0	9	526	4	342	77	5	0	417	0.014	17	0.006	9	18	0.15	14	11	5	-
Found./Crawl. Insul	13	1	9	4	0	0	1	0	7,922	0.1	61	0.0	0	61	2	220	53	0	0	609	0.051	61	0.000	0	61	0.27	24	13	-	-
Bandjoist Insul.	6	0	2	4	0	0	-	0	1,087	0.0	0	0.0	0	0	0	36	66	0	0	181	-	-	-	-	-	0.20	18	16	-	-
Furnace Blower Fan[1]	34	34	26	7	1	0	-	34	0	0.0	0	1.9	2,971	2,971	(0)	(14)	(3)	(0)	0	0	0.000	0	0.057	87	87	(0.01)	(1)	(0)	(0)	-
Exhaust Ventilation[2]	20	20	15	5	0	0	20	20	12,442	-0.1	(453)	(0.3)	(453)	(906)	(1)	(88)	(28)	0	0	622	-0.003	(23)	(0.015)	(23)	(45)	(0.06)	(6)	(6)	-	-
Total Heating System Repl	24	0	19	4	1	0	-	0	79,128	0.0	0	0.0	0	0	26	2,407	448	108	0	3,297	-	-	-	-	-	1.38	127	112	108	-
Condensing Htg Sys Rep	20	0	15	4	1	0	-	-	70,191	0.0	0	0.0	0	0	22	2,011	448	108	0	3,510	-	-	-	-	-	1.46	134	112	108	-
Non-Cond Htg Sys Repl	4	0	4	0	0	0	-	-	8,936	0.0	0	0.0	0	0	4	396	0	0	0	2,234	-	-	-	-	-	1.08	99	-	-	-
Electric Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Heat Pump Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-

	Number of Measures Installed by Fuel Type: Total	Electric	Gas	Propane	Fuel Oil	Other		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Water Heating	33	11	20	2	0	0	27,826	0.0	0.0	867	3.3	565	39	0	0	843	0.000	0.001	79	0.164	28	19	-	-
Temp. Reduct.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Pipe Insul.	32	11	19	2	0	0	604	0.0	0.0	482	0.2	59	6	0	0	19	0.000	0.000	44	0.01	3	3	-	-
LF Showerhead	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Faucet Aerator	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	17	3	13	1	0	0	27,222	0.0	0.0	385	3.1	506	33	0	0	1,601	0.000	0.003	128	0.24	39	33	-	-
Lighting	31	31					2,425	1.5	2.8	14,660	-	-	-	-	-	78	0.050	0.092	473	-	-	-	-	-
Refrigerator/Freezer[3]	16	16					17,072	1.2	1.1	9,403	-	-	-	-	-	1,067	0.072	0.068	588	-	-	-	-	-
Refrigerator Removal	0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Refrigerator Exchange	16	16					15,814	1.0	1.0	8,313	-	-	-	-	-	988	0.064	0.060	520	-	-	-	-	-
Freezer Removal	0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Freezer Exchange	2	2					1,258	0.1	0.1	1,090	-	-	-	-	-	629	0.067	0.063	545	-	-	-	-	-

Total Non-Efficiency Measures	35	**157,573**	**4,502**	
Misc Ins,Attic Access/Vent	29	5,103	176	
Duct Sealing	3	350	117	
Duct Insulation	11	1,560	142	
Damming Material	13	588	45	
Htg. Sys. Tune & Clean	10	872	87	
Htg. Sys./WH Other	7	3,189	456	
Air Conditioning Work	0	0	0	
Water Heater Repair	1	652	652	
Refrigerator Coil Clean	0	0	0	
Waterbed Mattress Pad	0	0	0	
Programmable Tstat	0	0	0	
Unspecified Utility Meas	0	0	0	
CO Detector	34	2,783	82	
Smoke Detector	28	1,986	71	
Fuses	1	60	60	
Htg Sys Safety Check	0	0	0	
Htg Sys Ventilation	25	8,891	356	
Water Heater Ventilation	14	5,364	383	
Bathroom Ventilation	17	2,254	133	
Dryer Ventilation	20	1,682	84	
Kitchen Ventilation	0	0	0	
Other Exhaust Ventilation	21	580	28	
Asbestos Removal (Minor)	0	0	0	
Health/Safety Repairs	22	3,464	157	
Health/Safety Other	1	21	21	
Consumables	0	0	0	
General Repairs	32	13,050	408	
Meter Refrig (no action)	10	0	0	
Meter Freezer (no action)	6	0	0	
Support	35	99,199	2,834	
Transportation Allowance	0	0	0	
Landlord Contr Misc	0	0	0	
Landlord Contr Furnace	0	0	0	
Landlord Contr DHW	0	0	0	
Client Contr (Any)	0	0	0	
Lead Safe Work	24	5,924	247	
Unspecifed/Other	0	0	0	

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Operation Threshold

Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $1,125,355

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $1,125,355

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Dwellings with kWh Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Total Efficiency Measures	**91**	**91**	**79**	**6**	**0**	**0**	**91**	**91**	**607,790**	**17.7**		**16.6**		**54,787**	**220**	**21,646**	**2,310**	**0**	**0**	**6,679**	**0.195**		**0.182**		**602**	**2.79**	**274**	**385**	**-**	**-**
Total Shell & Htg. Sys. Repl	91	91	79	6	0	0	84	91	506,045	16.6	18,687	15.0	23,398	42,085	207	19,236	2,250	0	0	5,561	0.198	222	0.165	257	462	2.61	243	375	-	-
Total Shell Measures	91	91	79	6	0	0	84	91	359,830	16.6	18,687	14.8	23,169	41,855	120	11,145	1,003	0	0	3,954	0.198	222	0.163	255	460	1.51	141	167	-	-
Wall Insul.	66	57	60	5	0	0	57	1	105,984	6.9	8,356	0.1	187	8,543	50	4,631	364	0	0	1,606	0.122	147	0.120	187	150	0.83	77	73	-	-
Open Blown Ceiling Insul	78	69	66	6	0	0	68	6	44,178	5.7	6,929	5.3	8,347	15,277	27	2,496	399	0	0	566	0.084	102	0.891	1,391	221	0.41	38	67	-	-
Cavity Fill Insul	32	23	28	2	0	0	23	2	29,116	1.1	1,339	0.9	1,472	2,811	15	1,421	67	0	0	910	0.048	58	0.472	736	122	0.54	51	33	-	-
Sloped Attic Insul	34	27	30	2	0	0	27	2	15,235	1.1	1,374	0.5	837	2,211	9	856	56	0	0	448	0.042	51	0.268	418	82	0.31	29	28	-	-
Kneewall Insul	23	20	19	2	0	0	20	2	5,017	0.3	378	0.1	137	515	3	256	18	0	0	218	0.016	19	0.044	68	26	0.14	13	9	-	-
Infil. Reduction	90	79	78	6	0	0	78	6	57,298	1.1	1,322	0.2	322	1,644	12	1,077	80	0	0	637	0.014	17	0.034	54	21	0.15	14	13	-	-
Found./Crawl. Insul	28	11	24	2	0	0	10	2	27,663	0.5	628	0.6	956	1,584	6	598	8	0	0	988	0.052	63	0.306	478	144	0.27	25	4	-	-
Bandjoist Insul.	58	4	48	6	0	0	-	4	4,955	0.0	0	0.4	594	594	2	169	32	0	0	85	0.000	0	0.095	148	148	0.04	4	5	-	-
Furnace Blower Fan[1]	85	85	79	6	0	0	-	85	0	0.0	0	8.9	13,872	13,872	(1)	(51)	(5)	0	0	0	0.000	0	0.105	163	163	(0.01)	(1)	(1)	-	-
Exhaust Ventilation[2]	65	65	57	3	0	0	65	65	70,385	-0.2	(1,640)	(2.3)	(3,555)	(5,196)	(3)	(307)	(17)	0	0	1,083	-0.003	(25)	(0.035)	(55)	(80)	(0.06)	(5)	(6)	-	-
Total Heating System Repl	65	2	59	4	0	0	-	2	146,215	0.0	0	0.1	230	230	87	8,091	1,247	0	0	2,249	0.000	0	0.074	115	115	1.47	137	312	-	-
Condensing Htg Sys Rep	51	0	47	4	0	0	-	-	90,975	0.0	0	0.0	0	0	57	5,307	705	0	0	1,784	-	-	-	-	-	1.21	113	176	-	-
Non-Cond Htg Sys Repl	27	0	24	3	0	0	-	-	47,220	0.0	0	0.0	0	0	30	2,784	541	0	0	1,749	-	-	-	-	-	1.25	116	180	-	-
Electric Htg Sys Repl	2	2	0	0	0	0	-	2	8,021	0.0	0	0.1	230	230	0	0	0	0	0	4,010	0.000	0	0.074	115	115	-	-	-	-	-
Heat Pump Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-

	Number of Measures Installed by Fuel Type: Total	Electric	Gas	Propane	Fuel Oil	Other	Spending on Materials & Labor ($)	Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Spending on Materials & Labor ($)	Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Water Heating	91	16	73	2	0	0	93,799	0.0	0.0	2,658	13.7	2,410	60	0	0	1,031	0.000	0.003	166	0.187	33	30	-	-
Temp. Reduct.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Pipe Insul.	90	16	72	2	0	0	1,730	0.0	0.0	749	0.6	215	6	0	0	19	0.000	0.000	47	0.01	3	3	-	-
LF Showerhead	22	4	18	0	0	0	230	0.0	0.0	786	0.4	133	0	0	0	10	0.000	0.004	197	0.02	7	-	-	-
Faucet Aerator	2	0	2	0	0	0	10	0.0	0.0	0	0.0	3	0	0	0	5	-	-	-	0.00	1	-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	65	8	55	2	0	0	91,829	0.0	0.0	1,123	12.6	2,059	54	0	0	1,413	0.000	0.003	140	0.23	37	27	-	-
Lighting	58	58					1,673	0.6	1.1	5,917	-	-	-	-	-	29	0.011	0.020	102	-	-	-	-	-
Refrigerator/Freezer[3]	8	8					6,273	0.4	0.4	4,127	-	-	-	-	-	784	0.056	0.052	516	-	-	-	-	-
Refrigerator Removal	0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Refrigerator Exchange	7	7					6,024	0.4	0.4	3,582	-	-	-	-	-	861	0.054	0.050	512	-	-	-	-	-
Freezer Removal	0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Freezer Exchange	1	1					249	0.1	0.1	545	-	-	-	-	-	249	0.067	0.063	545	-	-	-	-	-

Total Non-Efficiency Measures	91	**517,565**		**5,688**
Misc Ins,Attic Access/Vent	89	16,441		185
Duct Sealing	85	7,497		88
Duct Insulation	26	1,216		47
Damming Material	64	1,689		26
Htg. Sys. Tune & Clean	18	1,058		59
Htg. Sys./WH Other	41	7,742		189
Air Conditioning Work	11	360		33
Water Heater Repair	5	62		12
Refrigerator Coil Clean	0	0		0
Waterbed Mattress Pad	0	0		0
Programmable Tstat	10	970		97
Unspecified Utility Meas	0	0		0
CO Detector	87	4,888		56
Smoke Detector	52	3,030		58
Fuses	9	1,070		119
Htg Sys Safety Check	0	0		0
Htg Sys Ventilation	65	12,915		199
Water Heater Ventilation	62	8,442		136
Bathroom Ventilation	10	1,184		118
Dryer Ventilation	68	5,519		81
Kitchen Ventilation	0	0		0
Other Exhaust Ventilation	55	1,209		22
Asbestos Removal (Minor)	12	17,999		1,500
Health/Safety Repairs	84	65,127		775
Health/Safety Other	18	839		47
Consumables	35	1,491		43
General Repairs	88	32,843		373
Meter Refrig (no action)	68	0		0
Meter Freezer (no action)	32	0		0
Support	91	304,183		3,343
Transportation Allowance	35	3,931		112
Landlord Contr Misc	0	0		0
Landlord Contr Furnace	0	0		0
Landlord Contr DHW	0	0		0
Client Contr (Any)	0	0		0
Lead Safe Work	64	15,859		248
Unspecifed/Other	0	0		0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

IMPACT

Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $509,593

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $509,593

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Dwellings with kWh Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Total Efficiency Measures	**32**	**32**	**29**	**2**	**0**	**0**	**32**	**32**	**267,418**	**6.1**		**3.6**		**16,056**	**66**	**6,546**	**600**	**0**	**0**	**8,357**	**0.190**		**0.112**		**502**	**2.28**	**226**	**300**	**-**	**-**
Total Shell & Htg. Sys. Repl	32	32	29	2	0	0	32	32	217,304	5.5	6,064	2.6	4,073	10,136	61	5,679	549	0	0	6,791	0.172	189	0.081	127	317	2.10	196	274	-	-
Total Shell Measures	32	32	29	2	0	0	32	32	146,803	5.5	6,064	2.5	3,951	10,015	36	3,332	260	0	0	4,588	0.172	189	0.079	123	313	1.23	115	130	-	-
Wall Insul.	9	9	9	0	0	0	9	0	20,732	1.1	1,342	0.0	0	1,342	8	730	0	0	0	2,304	0.124	149	0.000	0	149	0.87	81	-	-	-
Open Blown Ceiling Insul	31	31	28	2	0	0	31	1	29,146	2.2	2,647	0.5	794	3,441	8	749	46	0	0	940	0.071	85	0.508	794	111	0.29	27	23	-	-
Cavity Fill Insul	7	7	6	0	0	0	7	1	6,407	0.4	496	0.2	322	818	4	375	0	0	0	915	0.059	71	0.206	322	117	0.67	63	-	-	-
Sloped Attic Insul	12	12	12	0	0	0	12	0	5,892	0.7	839	0.0	0	839	5	505	0	0	0	491	0.058	70	0.000	0	70	0.45	42	-	-	-
Kneewall Insul	14	14	14	0	0	0	14	0	4,406	0.4	507	0.0	0	507	3	245	0	0	0	315	0.030	36	0.000	0	36	0.19	17	-	-	-
Infil. Reduction	32	32	29	2	0	0	32	1	42,544	0.4	525	0.2	305	830	7	632	89	0	0	1,330	0.014	16	0.195	305	26	0.23	22	45	-	-
Found./Crawl. Insul	14	6	13	1	0	0	6	0	10,469	0.3	377	0.0	0	377	2	184	134	0	0	748	0.052	63	0.000	0	63	0.15	14	134	-	-
Bandjoist Insul.	16	0	15	1	0	0	-	0	2,077	0.0	0	0.0	0	0	1	57	7	0	0	130	-	-	-	-	-	0.04	4	7	-	-
Furnace Blower Fan[1]	31	31	29	2	0	0	-	31	0	0.0	0	2.3	3,581	3,581	(0)	(14)	(1)	0	0	0	0.000	0	0.074	116	116	(0.01)	(0)	(1)	-	-
Exhaust Ventilation[2]	28	28	25	2	0	0	28	28	25,130	-0.1	(668)	(0.7)	(1,051)	(1,718)	(1)	(129)	(14)	0	0	898	-0.003	(24)	(0.024)	(38)	(61)	(0.06)	(5)	(7)	-	-
Total Heating System Repl	26	1	23	2	0	0	-	1	70,501	0.0	0	0.1	122	122	25	2,347	289	0	0	2,712	0.000	0	0.078	122	122	1.09	102	144	-	-
Condensing Htg Sys Rep	24	0	22	2	0	0	-	-	63,656	0.0	0	0.0	0	0	24	2,238	289	0	0	2,652	-	-	-	-	-	1.09	102	144	-	-
Non-Cond Htg Sys Repl	1	0	1	0	0	0	-	-	2,045	0.0	0	0.0	0	0	1	109	0	0	0	2,045	-	-	-	-	-	1.17	109	-	-	-
Electric Htg Sys Repl	1	1	0	0	0	0	-	1	4,800	0.0	0	0.1	122	122	0	0	0	0	0	4,800	0.000	0	0.078	122	122	-	-	-	-	-
Heat Pump Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-

	Number of Measures Installed by Fuel Type: Total	Electric	Gas	Propane	Fuel Oil	Other		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Water Heating	31	3	26	2	0	0	46,517	0.0	0.0	571	5.1	867	52	0	0	1,501	0.000	0.004	190	0.195	33	26	-	-
Temp. Reduct.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Pipe Insul.	30	3	25	2	0	0	300	0.0	0.0	139	0.2	71	8	0	0	10	0.000	0.000	46	0.01	3	4	-	-
LF Showerhead	2	1	1	0	0	0	20	0.0	0.0	175	0.0	7	0	0	0	10	0.000	0.004	175	0.02	7	-	-	-
Faucet Aerator	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	25	2	22	1	0	0	46,197	0.0	0.0	257	4.8	789	43	0	0	1,848	0.000	0.003	128	0.22	36	43	-	-
Lighting	30	30					2,089	0.5	0.8	4,325	-	-	-	-	-	70	0.015	0.028	144	-	-	-	-	-
Refrigerator/Freezer[3]	2	2					1,508	0.1	0.1	1,023	-	-	-	-	-	754	0.063	0.059	512	-	-	-	-	-
Refrigerator Removal	0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Refrigerator Exchange	2	2					1,508	0.1	0.1	1,023	-	-	-	-	-	754	0.063	0.059	512	-	-	-	-	-
Freezer Removal	0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Freezer Exchange	0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-

Total Non-Efficiency Measures	32	**242,176**		**7,568**
Misc Ins,Attic Access/Vent	32	13,402		419
Duct Sealing	6	2,106		351
Duct Insulation	17	2,896		170
Damming Material	22	1,746		79
Htg. Sys. Tune & Clean	5	2,380		476
Htg. Sys./WH Other	6	2,774		462
Air Conditioning Work	1	750		750
Water Heater Repair	0	0		0
Refrigerator Coil Clean	0	0		0
Waterbed Mattress Pad	0	0		0
Programmable Tstat	0	0		0
Unspecified Utility Meas	0	0		0
CO Detector	31	1,761		57
Smoke Detector	30	966		32
Fuses	0	0		0
Htg Sys Safety Check	0	0		0
Htg Sys Ventilation	26	6,583		253
Water Heater Ventilation	22	4,325		197
Bathroom Ventilation	27	4,952		183
Dryer Ventilation	28	3,837		137
Kitchen Ventilation	0	0		0
Other Exhaust Ventilation	0	0		0
Asbestos Removal (Minor)	0	0		0
Health/Safety Repairs	30	28,228		941
Health/Safety Other	8	571		71
Consumables	0	0		0
General Repairs	32	29,966		936
Meter Refrig (no action)	19	0		0
Meter Freezer (no action)	7	0		0
Support	30	129,764		4,325
Transportation Allowance	0	0		0
Landlord Contr Misc	0	0		0
Landlord Contr Furnace	0	0		0
Landlord Contr DHW	0	0		0
Client Contr (Any)	0	0		0
Lead Safe Work	22	5,170		235
Unspecifed/Other	0	0		0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

South Central Iowa Community Action Program

Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $315,958

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $315,958

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Dwellings with kWh Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Total Efficiency Measures	**22**	**22**	**15**	**2**	**0**	**0**	**22**	**22**	**194,906**	**5.2**		**8.4**		**22,407**	**35**	**3,197**	**482**	**0**	**0**	**8,859**	**0.238**		**0.381**		**1,018**	**2.31**	**213**	**241**	**-**	**-**
Total Shell & Htg. Sys. Repl	22	22	15	2	0	0	22	22	167,824	4.8	5,333	7.7	11,418	16,751	33	2,914	439	0	0	7,628	0.217	242	0.352	519	761	2.21	194	220	-	-
Total Shell Measures	22	22	15	2	0	0	22	22	83,129	4.8	5,333	7.2	10,669	16,002	19	1,638	208	0	0	3,779	0.217	242	0.329	485	727	1.24	109	104	-	-
Wall Insul.	8	8	6	0	0	0	8	2	13,543	1.3	1,533	1.0	1,434	2,967	8	691	0	0	0	1,693	0.159	192	0.486	717	371	1.31	115	-	-	-
Open Blown Ceiling Insul	18	18	11	2	0	0	18	5	16,846	2.6	3,098	4.0	5,865	8,964	5	423	129	0	0	936	0.143	172	0.795	1,173	498	0.44	38	65	-	-
Cavity Fill Insul	2	2	1	0	0	0	2	1	390	0.0	38	0.1	140	178	0	8	0	0	0	195	0.016	19	0.095	140	89	0.10	8	-	-	-
Sloped Attic Insul	6	4	5	0	0	0	4	1	3,503	0.2	297	0.6	860	1,157	2	214	0	0	0	584	0.062	74	0.583	860	289	0.49	43	-	-	-
Kneewall Insul	1	0	1	0	0	0	0	0	138	0.0	0	0.0	0	0	0	0	0	0	0	138	-	-	-	-	-	0.00	0	-	-	-
Infil. Reduction	22	22	15	2	0	0	22	5	16,482	0.4	427	1.2	1,742	2,168	3	264	73	0	0	749	0.016	19	0.236	348	99	0.20	18	36	-	-
Found./Crawl. Insul	8	5	5	1	0	0	5	2	3,182	0.4	438	0.3	448	886	0	40	12	0	0	398	0.073	88	0.152	224	177	0.09	8	12	-	-
Bandjoist Insul.	7	2	5	0	0	0	-	2	767	0.0	0	0.1	168	168	1	59	0	0	0	110	0.000	0	0.057	84	84	0.13	12	-	-	-
Furnace Blower Fan[1]	17	17	15	2	0	0	-	17	0	0.0	0	1.4	2,041	2,041	(0)	(7)	(1)	0	0	0	0.000	0	0.081	120	120	(0.01)	(0)	(0)	-	-
Exhaust Ventilation[2]	16	16	11	1	0	0	16	16	28,278	-0.1	(497)	(1.4)	(2,029)	(2,527)	(1)	(56)	(6)	0	0	1,767	-0.004	(31)	(0.086)	(127)	(158)	(0.06)	(5)	(6)	-	-
Total Heating System Repl	18	5	11	2	0	0	-	5	84,695	0.0	0	0.5	749	749	14	1,276	231	0	0	4,705	0.000	0	0.102	150	150	1.32	116	115	-	-
Condensing Htg Sys Rep	13	0	11	2	0	0	-	-	51,470	0.0	0	0.0	0	0	14	1,276	231	0	0	3,959	-	-	-	-	-	1.32	116	115	-	-
Non-Cond Htg Sys Repl	0	0	0	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Electric Htg Sys Repl	3	3	0	0	0	0	-	3	9,850	0.0	0	0.3	487	487	0	0	0	0	0	3,283	0.000	0	0.110	162	162	-	-	-	-	-
Heat Pump Repl	2	2	0	0	0	0	-	2	23,375	0.0	0	0.2	261	261	0	0	0	0	0	11,688	0.000	0	0.089	131	131	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-

	Number of Measures Installed by Fuel Type: Total	Electric	Gas	Propane	Fuel Oil	Other		Billing Adjusted First-Year Savings: Summer kW	Winter kW	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Summer kW	Winter kW	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Water Heating	18	7	10	1	0	0	24,462	0.0	0.0	1,567	1.6	283	43	0	0	1,359	0.000	0.004	224	0.160	28	43	-	-
Temp. Reduct.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Pipe Insul.	12	5	7	0	0	0	108	0.0	0.0	246	0.1	20	0	0	0	9	0.000	0.000	49	0.01	3	-	-	-
LF Showerhead	9	5	3	1	0	0	77	0.0	0.0	1,004	0.1	21	8	0	0	9	0.000	0.005	201	0.02	7	8	-	-
Faucet Aerator	7	5	1	1	0	0	36	0.0	0.0	189	0.0	3	3	0	0	5	0.000	0.001	38	0.01	3	3	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	10	1	8	1	0	0	24,240	0.0	0.0	128	1.5	240	33	0	0	2,424	0.000	0.003	128	0.18	30	33	-	-
Lighting	16	16					345	0.2	0.3	1,723	-	-	-	-	-	22	0.011	0.021	108	-	-	-	-	-
Refrigerator/Freezer[3]	3	3					2,275	0.3	0.3	2,366	-	-	-	-	-	758	0.097	0.091	789	-	-	-	-	-
Refrigerator Removal	0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Refrigerator Exchange	2	2					1,475	0.2	0.1	1,276	-	-	-	-	-	738	0.078	0.073	638	-	-	-	-	-
Freezer Removal	0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Freezer Exchange	1	1					800	0.1	0.1	1,090	-	-	-	-	-	800	0.134	0.125	1,090	-	-	-	-	-

Total Non-Efficiency Measures	22	**121,052**		**5,502**
Misc Ins,Attic Access/Vent	20	4,129		206
Duct Sealing	2	375		188
Duct Insulation	9	474		53
Damming Material	14	1,098		78
Htg. Sys. Tune & Clean	7	1,525		218
Htg. Sys./WH Other	4	2,278		570
Air Conditioning Work	0	0		0
Water Heater Repair	2	260		130
Refrigerator Coil Clean	0	0		0
Waterbed Mattress Pad	0	0		0
Programmable Tstat	0	0		0
Unspecified Utility Meas	0	0		0
CO Detector	21	644		31
Smoke Detector	14	575		41
Fuses	0	0		0
Htg Sys Safety Check	0	0		0
Htg Sys Ventilation	13	4,950		381
Water Heater Ventilation	9	2,075		231
Bathroom Ventilation	5	961		192
Dryer Ventilation	14	1,452		104
Kitchen Ventilation	0	0		0
Other Exhaust Ventilation	11	319		29
Asbestos Removal (Minor)	0	0		0
Health/Safety Repairs	16	5,879		367
Health/Safety Other	2	81		41
Consumables	0	0		0
General Repairs	22	21,670		985
Meter Refrig (no action)	20	0		0
Meter Freezer (no action)	11	0		0
Support	19	68,564		3,609
Transportation Allowance	0	0		0
Landlord Contr Misc	0	0		0
Landlord Contr Furnace	0	0		0
Landlord Contr DHW	0	0		0
Client Contr (Any)	0	0		0
Lead Safe Work	18	3,745		208
Unspecifed/Other	0	0		0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Community Action of South Eastern Iowa

Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $944,073

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $944,073

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Dwellings with kWh Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Total Efficiency Measures	**57**	**57**	**55**	**1**	**0**	**0**	**57**	**57**	**533,540**	**20.5**		**11.5**		**47,841**	**214**	**18,906**	**419**	**0**	**0**	**9,360**	**0.359**		**0.202**		**839**	**3.89**	**344**	**419**	**-**	**-**
Total Shell & Htg. Sys. Repl	57	57	55	1	0	0	56	57	460,500	19.2	22,913	9.6	13,548	36,461	204	17,150	383	0	0	8,079	0.343	409	0.168	238	640	3.70	312	383	-	-
Total Shell Measures	57	57	55	1	0	0	56	57	288,589	19.2	22,913	9.6	13,548	36,461	127	10,675	243	0	0	5,063	0.343	409	0.168	238	640	2.31	194	243	-	-
Wall Insul.	45	44	44	1	0	0	44	0	80,678	7.9	9,487	0.0	0	9,487	48	4,075	91	0	0	1,793	0.179	216	0.000	0	216	1.10	93	91	-	-
Open Blown Ceiling Insul	52	51	50	1	0	0	51	1	55,011	6.4	7,675	2.1	2,942	10,617	40	3,384	70	0	0	1,058	0.125	150	2.085	2,942	208	0.80	68	70	-	-
Cavity Fill Insul	18	16	17	1	0	0	16	0	15,973	1.1	1,380	0.0	0	1,380	9	761	19	0	0	887	0.072	86	0.000	0	86	0.53	45	19	-	-
Sloped Attic Insul	23	23	22	1	0	0	23	0	11,243	1.2	1,462	0.0	0	1,462	8	704	38	0	0	489	0.053	64	0.000	0	64	0.38	32	38	-	-
Kneewall Insul	18	18	18	0	0	0	18	0	8,603	0.4	473	0.0	0	473	2	207	0	0	0	478	0.022	26	0.000	0	26	0.14	12	-	-	-
Infil. Reduction	57	56	55	1	0	0	56	1	94,051	1.1	1,325	0.3	475	1,800	13	1,085	15	0	0	1,650	0.020	24	0.337	475	32	0.23	20	15	-	-
Found./Crawl. Insul	37	16	35	1	0	0	15	1	20,976	1.2	1,418	0.8	1,185	2,602	6	527	11	0	0	567	0.078	95	0.840	1,185	163	0.18	15	11	-	-
Bandjoist Insul.	3	0	3	0	0	0	-	0	548	0.0	0	0.0	0	0	0	18	0	0	0	183	-	-	-	-	-	0.07	6	-	-	-
Furnace Blower Fan[1]	56	56	55	1	0	0	-	56	0	0.0	0	6.8	9,634	9,634	(0)	(30)	(1)	0	0	0	0.000	0	0.122	172	172	(0.01)	(1)	(1)	-	-
Exhaust Ventilation[2]	12	12	11	0	0	0	12	12	1,508	0.0	(305)	(0.5)	(688)	(994)	(1)	(59)	0	0	0	126	-0.003	(25)	(0.041)	(57)	(83)	(0.06)	(5)	-	-	-
Total Heating System Repl	48	0	47	1	0	0	-	0	171,910	0.0	0	0.0	0	0	77	6,475	140	0	0	3,581	-	-	-	-	-	1.64	138	140	-	-
Condensing Htg Sys Rep	48	0	47	1	0	0	-	-	171,910	0.0	0	0.0	0	0	77	6,475	140	0	0	3,581	-	-	-	-	-	1.64	138	140	-	-
Non-Cond Htg Sys Repl	0	0	0	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Electric Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Heat Pump Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-

	Number of Measures Installed by Fuel Type: Total	Electric	Gas	Propane	Fuel Oil	Other		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Water Heating	56	4	51	1	0	0	101	4	95	2	0	0	68,121	0.0	0.0	182	10.3	1,757	36	0	0	1,216	0.000	0.000	45	0.202	34	36	-	-
Temp. Reduct.	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Pipe Insul.	56	4	51	1	0	0	56	4	51	1	0	0	380	0.0	0.0	182	0.4	147	3	0	0	7	0.000	0.000	45	0.01	3	3	-	-
LF Showerhead	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Faucet Aerator	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	45	0	44	1	0	0	45	0	44	1	0	0	67,741	0.0	0.0	0	9.9	1,610	33	0	0	1,505	-	-	-	0.22	37	33	-	-
Lighting	33	33					350	350					753	0.8	1.5	7,549	-	-	-	-	-	23	0.024	0.044	229	-	-	-	-	-
Refrigerator/Freezer[3]	7	7					7	7					4,167	0.4	0.4	3,648	-	-	-	-	-	595	0.064	0.060	521	-	-	-	-	-
Refrigerator Removal	0	0					0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Refrigerator Exchange	5	5					5	5					3,438	0.3	0.3	2,558	-	-	-	-	-	688	0.063	0.059	512	-	-	-	-	-
Freezer Removal	0	0					0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Freezer Exchange	2	2					2	2					729	0.1	0.1	1,090	-	-	-	-	-	365	0.067	0.063	545	-	-	-	-	-

Total Non-Efficiency Measures	57	**410,533**		**7,202**
Misc Ins,Attic Access/Vent	49	8,783		179
Duct Sealing	1	490		490
Duct Insulation	15	789		53
Damming Material	24	852		35
Htg. Sys. Tune & Clean	11	1,797		163
Htg. Sys./WH Other	13	17,092		1,315
Air Conditioning Work	15	3,419		228
Water Heater Repair	5	982		196
Refrigerator Coil Clean	0	0		0
Waterbed Mattress Pad	0	0		0
Programmable Tstat	0	0		0
Unspecified Utility Meas	0	0		0
CO Detector	47	2,433		52
Smoke Detector	22	546		25
Fuses	0	0		0
Htg Sys Safety Check	0	0		0
Htg Sys Ventilation	40	8,841		221
Water Heater Ventilation	28	4,279		153
Bathroom Ventilation	21	1,437		68
Dryer Ventilation	42	1,664		40
Kitchen Ventilation	0	0		0
Other Exhaust Ventilation	35	886		25
Asbestos Removal (Minor)	0	0		0
Health/Safety Repairs	53	30,678		579
Health/Safety Other	7	649		93
Consumables	39	937		24
General Repairs	57	36,500		640
Meter Refrig (no action)	36	0		0
Meter Freezer (no action)	9	0		0
Support	57	268,206		4,705
Transportation Allowance	0	0		0
Landlord Contr Misc	0	0		0
Landlord Contr Furnace	0	0		0
Landlord Contr DHW	0	0		0
Client Contr (Any)	0	0		0
Lead Safe Work	44	19,275		438
Unspecifed/Other	0	0		0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Southern Iowa Economic Development Authority
Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $869,299
Utility Administration Expenditures: -
Total Labor and Material Expenditures: $869,299

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Dwellings with kWh Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Total Efficiency Measures	**75**	**75**	**35**	**18**	**11**	**0**	**75**	**75**	**448,804**	**19.0**		**27.3**		**78,954**	**79**	**7,230**	**4,071**	**1,397**	**0**	**5,984**	**0.253**		**0.364**		**1,053**	**2.25**	**207**	**226**	**127**	**-**
Total Shell & Htg. Sys. Repl	75	75	35	18	11	0	74	75	367,776	16.6	19,259	23.4	34,519	53,777	75	6,607	3,677	1,397	0	4,904	0.225	260	0.312	460	717	2.14	189	204	127	-
Total Shell Measures	75	75	35	18	11	0	74	75	222,527	16.6	19,259	23.0	33,908	53,166	40	3,490	1,980	1,008	0	2,967	0.225	260	0.307	452	709	1.13	100	110	92	-
Wall Insul.	37	36	18	7	7	0	36	5	34,671	5.7	6,838	5.9	8,657	15,495	10	883	382	246	0	937	0.157	190	1.174	1,731	430	0.56	49	55	35	-
Open Blown Ceiling Insul	54	53	24	12	10	0	52	8	52,627	7.2	8,687	9.3	13,763	22,450	18	1,557	822	450	0	975	0.139	167	1.167	1,720	424	0.74	65	68	45	-
Cavity Fill Insul	8	6	2	3	2	0	5	1	5,946	0.2	276	0.3	403	680	1	72	143	44	0	743	0.046	55	0.274	403	113	0.41	36	48	22	-
Sloped Attic Insul	11	10	5	3	3	0	10	0	4,620	0.5	663	0.0	0	663	2	153	96	82	0	420	0.055	66	0.000	0	66	0.35	31	32	27	-
Kneewall Insul	4	4	3	0	1	0	4	0	1,151	0.2	183	0.0	0	183	1	65	0	12	0	288	0.038	46	0.000	0	46	0.25	22	-	12	-
Infil. Reduction	74	73	35	17	11	0	72	11	59,502	1.2	1,486	1.4	2,059	3,544	6	537	292	87	0	804	0.017	21	0.127	187	49	0.17	15	17	8	-
Found./Crawl. Insul	52	28	27	13	6	0	25	6	20,005	1.7	2,053	2.1	3,070	5,123	2	195	207	76	0	385	0.068	82	0.347	512	183	0.08	7	16	13	-
Bandjoist Insul.	45	4	21	12	8	0	-	4	6,575	0.0	0	0.5	695	695	1	131	77	37	0	146	0.000	0	0.118	174	174	0.07	6	6	5	-
Furnace Blower Fan[1]	64	64	35	18	11	0	-	64	0	0.0	0	5.8	8,485	8,485	(0)	(17)	(8)	(5)	0	0	0.000	0	0.090	133	133	(0.01)	(0)	(0)	(0)	-
Exhaust Ventilation[2]	32	32	15	6	5	0	32	32	37,430	-0.1	(927)	(2.2)	(3,225)	(4,152)	(1)	(84)	(31)	(20)	0	1,170	-0.004	(29)	(0.068)	(101)	(130)	(0.06)	(6)	(5)	(4)	-
Total Heating System Repl	53	4	30	14	5	0	-	4	145,249	0.0	0	0.4	611	611	35	3,117	1,697	389	0	2,741	0.000	0	0.104	153	153	1.18	104	121	78	-
Condensing Htg Sys Rep	40	0	24	13	3	0	-	-	116,164	0.0	0	0.0	0	0	29	2,584	1,592	268	0	2,904	-	-	-	-	-	1.22	108	122	89	-
Non-Cond Htg Sys Repl	9	0	6	1	2	0	-	-	20,535	0.0	0	0.0	0	0	6	533	105	121	0	2,282	-	-	-	-	-	1.01	89	105	60	-
Electric Htg Sys Repl	4	4	0	0	0	0	-	4	8,550	0.0	0	0.4	611	611	0	0	0	0	0	2,138	0.000	0	0.104	153	153	-	-	-	-	-
Heat Pump Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-

	Number of Measures Installed by Fuel Type: Total	Electric	Gas	Propane	Fuel Oil	Other	Spending on Materials & Labor ($)	Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Spending on Materials & Labor ($)	Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Water Heating	74	40	23	11	0	0	71,891	0.0	0.0	3,467	3.6	623	393	0	0	971	0.000	0.001	87	0.156	27	36	-	-
Temp. Reduct.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Pipe Insul.	73	40	23	10	0	0	630	0.0	0.0	1,829	0.2	66	33	0	0	9	0.000	0.000	46	0.01	3	3	-	-
LF Showerhead	1	0	1	0	0	0	6	0.0	0.0	0	0.0	7	0	0	0	6	-	-	-	0.02	7	-	-	-
Faucet Aerator	1	1	0	0	0	0	5	0.0	0.0	33	0.0	0	0	0	0	5	0.000	0.001	33	-	-	-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	38	12	17	9	0	0	71,250	0.0	0.0	1,605	3.4	551	360	0	0	1,875	0.000	0.003	134	0.20	32	40	-	-
Lighting	39	39					2,361	1.8	3.3	16,912	-	-	-	-	-	61	0.046	0.084	434	-	-	-	-	-
Refrigerator/Freezer[3]	8	8					6,777	0.6	0.6	4,798	-	-	-	-	-	847	0.074	0.069	600	-	-	-	-	-
Refrigerator Removal	0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Refrigerator Exchange	6	6					5,789	0.5	0.4	3,708	-	-	-	-	-	965	0.076	0.071	618	-	-	-	-	-
Freezer Removal	0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Freezer Exchange	2	2					988	0.1	0.1	1,090	-	-	-	-	-	494	0.067	0.063	545	-	-	-	-	-

Total Non-Efficiency Measures	75	**420,495**	**5,607**
Misc Ins,Attic Access/Vent	63	11,935	189
Duct Sealing	11	1,392	127
Duct Insulation	33	1,854	56
Damming Material	46	3,631	79
Htg. Sys. Tune & Clean	20	5,913	296
Htg. Sys./WH Other	16	9,446	590
Air Conditioning Work	0	0	0
Water Heater Repair	3	275	92
Refrigerator Coil Clean	0	0	0
Waterbed Mattress Pad	0	0	0
Programmable Tstat	0	0	0
Unspecified Utility Meas	0	0	0
CO Detector	70	3,560	51
Smoke Detector	46	830	18
Fuses	0	0	0
Htg Sys Safety Check	0	0	0
Htg Sys Ventilation	33	8,178	248
Water Heater Ventilation	26	4,199	161
Bathroom Ventilation	40	6,814	170
Dryer Ventilation	60	5,464	91
Kitchen Ventilation	0	0	0
Other Exhaust Ventilation	62	3,390	55
Asbestos Removal (Minor)	0	0	0
Health/Safety Repairs	53	44,262	835
Health/Safety Other	7	480	69
Consumables	0	0	0
General Repairs	70	77,239	1,103
Meter Refrig (no action)	69	0	0
Meter Freezer (no action)	26	0	0
Support	74	221,752	2,997
Transportation Allowance	0	0	0
Landlord Contr Misc	0	0	0
Landlord Contr Furnace	0	0	0
Landlord Contr DHW	0	0	0
Client Contr (Any)	0	0	0
Lead Safe Work	57	9,880	173
Unspecifed/Other	0	0	0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Upper Des Moines Opportunity

Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $928,263

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $928,263

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Dwellings with kWh Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Total Efficiency Measures	**81**	**81**	**73**	**5**	**0**	**0**	**80**	**81**	**554,157**	**17.0**		**14.6**		**64,089**	**138**	**14,206**	**1,857**	**0**	**0**	**6,841**	**0.213**		**0.181**		**791**	**1.90**	**195**	**371**	**-**	**-**
Total Shell & Htg. Sys. Repl	81	81	73	5	0	0	77	80	455,485	13.5	14,945	9.1	14,901	29,846	128	12,505	1,827	0	0	5,623	0.176	194	0.114	186	368	1.76	171	365	-	-
Total Shell Measures	81	81	73	5	0	0	77	80	321,968	13.5	14,945	9.1	14,901	29,846	74	7,231	814	0	0	3,975	0.176	194	0.114	186	368	1.02	99	163	-	-
Wall Insul.	51	44	45	5	0	0	44	1	93,986	5.3	6,408	0.9	1,388	7,796	34	3,329	417	0	0	1,843	0.121	146	0.851	1,388	177	0.76	74	83	-	-
Open Blown Ceiling Insul	66	59	60	4	0	0	59	2	44,822	4.8	5,846	4.2	6,871	12,717	8	804	170	0	0	679	0.082	99	2.106	3,436	216	0.14	13	43	-	-
Cavity Fill Insul	21	16	19	2	0	0	16	0	16,956	1.0	1,203	0.0	0	1,203	10	940	51	0	0	807	0.062	75	0.000	0	75	0.51	49	25	-	-
Sloped Attic Insul	21	16	19	2	0	0	16	0	15,980	1.1	1,316	0.0	0	1,316	10	950	94	0	0	761	0.068	82	0.000	0	82	0.51	50	47	-	-
Kneewall Insul	10	8	8	2	0	0	8	0	4,447	0.1	126	0.0	0	126	1	119	15	0	0	445	0.013	16	0.000	0	16	0.15	15	7	-	-
Infil. Reduction	79	70	71	5	0	0	70	3	28,284	1.0	1,221	0.6	1,029	2,250	8	809	44	0	0	358	0.014	17	0.210	343	32	0.12	11	9	-	-
Found./Crawl. Insul	34	7	31	2	0	0	7	1	21,323	0.4	444	0.1	161	605	3	329	24	0	0	627	0.053	63	0.099	161	86	0.11	11	12	-	-
Bandjoist Insul.	47	2	41	4	0	0	-	2	13,825	0.0	0	0.1	196	196	3	292	21	0	0	294	0.000	0	0.060	98	98	0.07	7	5	-	-
Furnace Blower Fan[1]	78	70	73	5	0	0	-	70	0	0.0	0	4.9	8,022	8,022	(0)	(30)	(4)	0	0	0	0.000	0	0.070	115	115	(0.00)	(0)	(1)	-	-
Exhaust Ventilation[2]	67	67	61	3	0	0	67	67	82,344	-0.2	(1,618)	(1.7)	(2,767)	(4,385)	(3)	(311)	(17)	0	0	1,229	-0.003	(24)	(0.025)	(41)	(65)	(0.05)	(5)	(6)	-	-
Total Heating System Repl	51	0	47	4	0	0	-	0	133,517	0.0	0	0.0	0	0	54	5,274	1,012	0	0	2,618	-	-	-	-	-	1.15	112	253	-	-
Condensing Htg Sys Rep	51	0	47	4	0	0	-	-	127,517	0.0	0	0.0	0	0	51	4,983	618	0	0	2,500	-	-	-	-	-	1.09	106	155	-	-
Non-Cond Htg Sys Repl	4	0	2	2	0	0	-	-	6,000	0.0	0	0.0	0	0	3	291	394	0	0	1,500	-	-	-	-	-	1.49	145	197	-	-
Electric Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Heat Pump Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-

	Number of Measures Installed by Fuel Type: Total	Electric	Gas	Propane	Fuel Oil	Other	Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Spending on Materials & Labor ($)	Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Water Heating	81	26	54	1	0	0	0.0	0.0	2,665	9.9	1,700	30	0	0	995	0.000	0.001	103	0.183	31	30	-	-
Temp. Reduct.	5	4	1	0	0	0	0.0	0.0	461	0.0	7	0	0	0	0	0.000	0.000	115	0.02	7	-	-	-
WH Wrap	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	-	-	-	-	-	-	-	-	-
Pipe Insul.	81	26	54	1	0	0	0.0	0.0	1,145	0.4	154	3	0	0	20	0.000	0.000	44	0.01	3	3	-	-
LF Showerhead	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Faucet Aerator	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	59	8	50	1	0	0	0.0	0.0	1,059	9.4	1,539	27	0	0	1,338	0.000	0.003	132	0.19	31	27	-	-
Lighting	72	72					2.4	4.5	23,231	-	-	-	-	-	64	0.034	0.063	323	-	-	-	-	-
Refrigerator/Freezer[3]	16	16					1.0	1.0	8,346	-	-	-	-	-	843	0.064	0.060	522	-	-	-	-	-
Refrigerator Removal	0	0					0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Refrigerator Exchange	15	15					1.0	0.9	7,801	-	-	-	-	-	871	0.064	0.060	520	-	-	-	-	-
Freezer Removal	0	0					0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Freezer Exchange	1	1					0.1	0.1	545	-	-	-	-	-	435	0.067	0.063	545	-	-	-	-	-

Total Non-Efficiency Measures	81	**374,106**	**4,619**
Misc Ins,Attic Access/Vent	73	6,163	84
Duct Sealing	1	30	30
Duct Insulation	29	1,851	64
Damming Material	46	1,632	35
Htg. Sys. Tune & Clean	74	18,249	247
Htg. Sys./WH Other	22	7,551	343
Air Conditioning Work	0	0	0
Water Heater Repair	15	789	53
Refrigerator Coil Clean	0	0	0
Waterbed Mattress Pad	0	0	0
Programmable Tstat	0	0	0
Unspecified Utility Meas	0	0	0
CO Detector	81	8,888	110
Smoke Detector	79	5,192	66
Fuses	0	0	0
Htg Sys Safety Check	1	85	85
Htg Sys Ventilation	41	6,133	150
Water Heater Ventilation	51	7,745	152
Bathroom Ventilation	31	3,954	128
Dryer Ventilation	40	4,407	110
Kitchen Ventilation	0	0	0
Other Exhaust Ventilation	48	2,143	45
Asbestos Removal (Minor)	0	0	0
Health/Safety Repairs	37	7,867	213
Health/Safety Other	1	30	30
Consumables	0	0	0
General Repairs	59	20,939	355
Meter Refrig (no action)	64	0	0
Meter Freezer (no action)	20	0	0
Support	79	255,321	3,232
Transportation Allowance	0	0	0
Landlord Contr Misc	0	0	0
Landlord Contr Furnace	0	0	0
Landlord Contr DHW	0	0	0
Client Contr (Any)	0	0	0
Lead Safe Work	62	15,137	244
Unspecifed/Other	0	0	0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

West Central Development Corporation

Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $665,352

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $665,352

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Dwellings with kWh Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Total Efficiency Measures	**46**	**46**	**39**	**4**	**0**	**0**	**46**	**46**	**362,610**	**14.2**		**12.1**		**39,619**	**87**	**8,093**	**1,034**	**0**	**0**	**7,883**	**0.308**		**0.263**		**861**	**2.23**	**208**	**259**	**-**	**-**
Total Shell & Htg. Sys. Repl	46	46	39	4	0	0	46	46	300,273	13.5	15,380	10.9	15,702	31,082	81	6,937	961	0	0	6,528	0.293	334	0.236	341	676	2.06	178	240	-	-
Total Shell Measures	46	46	39	4	0	0	46	46	161,034	13.5	15,380	10.7	15,490	30,870	32	2,758	415	0	0	3,501	0.293	334	0.233	337	671	0.82	71	104	-	-
Wall Insul.	30	27	24	3	0	0	27	3	50,870	5.1	6,179	2.8	4,089	10,268	15	1,294	210	0	0	1,696	0.190	229	0.944	1,363	380	0.63	54	70	-	-
Open Blown Ceiling Insul	41	38	34	4	0	0	38	3	32,934	5.2	6,262	5.0	7,176	13,438	7	562	70	0	0	803	0.137	165	1.656	2,392	354	0.19	17	17	-	-
Cavity Fill Insul	1	1	1	0	0	0	1	0	1,835	0.1	180	0.0	0	180	1	58	0	0	0	1,835	0.150	180	0.000	0	180	0.68	58	-	-	-
Sloped Attic Insul	13	13	10	2	0	0	13	1	4,733	1.5	1,767	1.2	1,786	3,553	3	245	65	0	0	364	0.113	136	1.237	1,786	273	0.28	24	32	-	-
Kneewall Insul	7	7	6	1	0	0	7	0	2,319	0.3	365	0.0	0	365	1	54	1	0	0	331	0.043	52	0.000	0	52	0.10	9	1	-	-
Infil. Reduction	46	43	39	4	0	0	43	3	27,399	1.0	1,202	0.4	523	1,725	6	491	75	0	0	596	0.023	28	0.121	174	40	0.15	13	19	-	-
Found./Crawl. Insul	18	7	14	2	0	0	5	2	8,063	0.4	476	0.1	153	629	2	168	8	0	0	448	0.079	95	0.053	77	90	0.14	12	4	-	-
Bandjoist Insul.	17	3	10	4	0	0	-	3	2,035	0.0	0	0.3	385	385	1	75	9	0	0	120	0.000	0	0.089	128	128	0.09	8	2	-	-
Furnace Blower Fan[1]	43	41	39	4	0	0	-	41	0	0.0	0	2.5	3,581	3,581	(0)	(13)	(2)	0	0	0	0.000	0	0.060	87	87	(0.00)	(0)	(0)	-	-
Exhaust Ventilation[2]	42	42	35	4	0	0	42	42	30,846	-0.1	(1,052)	(1.5)	(2,201)	(3,253)	(2)	(177)	(22)	0	0	734	-0.003	(25)	(0.036)	(52)	(77)	(0.06)	(5)	(6)	-	-
Total Heating System Repl	34	1	29	4	0	0	-	1	139,239	0.0	0	0.1	212	212	48	4,179	546	0	0	4,095	0.000	0	0.147	212	212	1.67	144	137	-	-
Condensing Htg Sys Rep	33	0	29	4	0	0	-	-	130,037	0.0	0	0.0	0	0	48	4,179	546	0	0	3,941	-	-	-	-	-	1.67	144	137	-	-
Non-Cond Htg Sys Repl	0	0	0	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Electric Htg Sys Repl	1	1	0	0	0	0	-	1	9,202	0.0	0	0.1	212	212	0	0	0	0	0	9,202	0.000	0	0.147	212	212	-	-	-	-	-
Heat Pump Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	Number of Measures Installed by Fuel Type: Total	Electric	Gas	Propane	Fuel Oil	Other																								
Water Heating	44	9	32	3	0	0	141	28	107	6	0	0	58,693	0.0	0.0	2,215	6.3	1,156	73	0	0	1,334	0.000	0.005	246	0.198	36	24	-	-
Temp. Reduct.	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	-	-	-	-	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	-	-	-	-	-	-	-	-	-
Pipe Insul.	42	9	32	1	0	0	42	9	32	1	0	0	830	0.0	0.0	417	0.3	93	3	0	0	20	0.000	0.000	46	0.01	3	3	-	-
LF Showerhead	20	3	16	1	0	0	20	3	16	1	0	0	200	0.0	0.0	611	0.4	110	8	0	0	10	0.000	0.005	204	0.02	7	8	-	-
Faucet Aerator	32	7	23	2	0	0	45	10	33	2	0	0	225	0.0	0.0	353	0.1	45	3	0	0	7	0.000	0.001	50	0.01	2	1	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	-	-	-	-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	34	6	26	2	0	0	34	6	26	2	0	0	57,438	0.0	0.0	834	5.6	908	60	0	0	1,689	0.000	0.003	139	0.21	35	30	-	-
Lighting	39	39					376	376					2,724	0.6	1.1	5,809	-	-	-	-	-	70	0.016	0.029	149	-	-	-	-	-
Refrigerator/Freezer[3]	1	1					1	1					920	0.1	0.1	512	-	-	-	-	-	920	0.063	0.059	512	-	-	-	-	-
Refrigerator Removal	0	0					0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Refrigerator Exchange	1	1					1	1					920	0.1	0.1	512	-	-	-	-	-	920	0.063	0.059	512	-	-	-	-	-
Freezer Removal	0	0					0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Freezer Exchange	0	0					0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Total Non-Efficiency Measures	46								**302,742**											**6,581**									
Misc Ins,Attic Access/Vent	43								10,848											252									
Duct Sealing	11								1,080											98									
Duct Insulation	40								4,463											112									
Damming Material	32								1,475											46									
Htg. Sys. Tune & Clean	11								3,295											300									
Htg. Sys./WH Other	9								2,283											254									
Air Conditioning Work	0								0											0									
Water Heater Repair	3								230											77									
Refrigerator Coil Clean	0								0											0									
Waterbed Mattress Pad	0								0											0									
Programmable Tstat	0								0											0									
Unspecified Utility Meas	0								0											0									
CO Detector	31								648											21									
Smoke Detector	17								1,095											64									
Fuses	0								0											0									
Htg Sys Safety Check	0								0											0									
Htg Sys Ventilation	33								8,900											270									
Water Heater Ventilation	26								5,039											194									
Bathroom Ventilation	43								3,924											91									
Dryer Ventilation	19								829											44									
Kitchen Ventilation	0								0											0									
Other Exhaust Ventilation	42								1,942											46									
Asbestos Removal (Minor)	0								0											0									
Health/Safety Repairs	26								19,095											734									
Health/Safety Other	8								361											45									
Consumables	0								0											0									
General Repairs	46								34,836											757									
Meter Refrig (no action)	43								0											0									
Meter Freezer (no action)	16								0											0									
Support	46								188,041											4,088									
Transportation Allowance	0								0											0									
Landlord Contr Misc	0								0											0									
Landlord Contr Furnace	0								0											0									
Landlord Contr DHW	0								0											0									
Client Contr (Any)	0								0											0									
Lead Safe Work	31								14,359											463									
Unspecifed/Other	0								0											0									

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Community Action Agency of Siouxland

Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $577,108

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $577,108

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Dwellings with kWh Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Total Efficiency Measures	**40**	**40**	**24**	**6**	**0**	**0**	**40**	**40**	**313,944**	**12.4**		**19.5**		**65,759**	**58**	**5,508**	**1,573**	**0**	**0**	**7,849**	**0.310**		**0.488**		**1,644**	**2.42**	**229**	**262**	**-**	**-**
Total Shell & Htg. Sys. Repl	40	40	24	6	0	0	39	40	271,826	9.1	10,268	14.8	22,633	32,901	56	5,131	1,488	0	0	6,796	0.234	263	0.370	566	823	2.34	214	248	-	-
Total Shell Measures	39	39	24	6	0	0	39	39	165,581	9.1	10,268	14.2	21,683	31,951	33	3,005	816	0	0	4,246	0.234	263	0.364	556	819	1.37	125	136	-	-
Wall Insul.	20	20	12	4	0	0	20	4	22,845	3.1	3,771	1.2	1,765	5,537	9	820	223	0	0	1,142	0.156	189	0.289	441	277	0.75	68	56	-	-
Open Blown Ceiling Insul	32	32	18	6	0	0	32	8	37,396	3.8	4,617	7.4	11,330	15,947	8	690	194	0	0	1,169	0.120	144	0.926	1,416	498	0.42	38	32	-	-
Cavity Fill Insul	6	5	6	0	0	0	5	0	6,191	0.3	378	0.0	0	378	4	399	0	0	0	1,032	0.063	76	0.000	0	76	0.73	67	-	-	-
Sloped Attic Insul	8	8	6	1	0	0	8	1	5,233	0.5	656	0.1	154	810	3	262	97	0	0	654	0.068	82	0.101	154	101	0.48	44	97	-	-
Kneewall Insul	6	6	4	1	0	0	6	1	4,953	0.3	327	0.2	378	705	1	132	16	0	0	826	0.045	55	0.247	378	117	0.36	33	16	-	-
Infil. Reduction	39	39	24	6	0	0	39	9	21,242	0.7	869	2.7	4,084	4,953	5	420	158	0	0	545	0.018	22	0.297	454	127	0.19	17	26	-	-
Found./Crawl. Insul	17	8	8	3	0	0	6	6	19,268	0.4	531	1.2	1,888	2,419	2	172	62	0	0	1,133	0.073	89	0.206	315	302	0.24	21	21	-	-
Bandjoist Insul.	28	6	17	5	0	0	-	6	11,302	0.0	0	1.1	1,693	1,693	2	219	103	0	0	404	0.000	0	0.185	282	282	0.14	13	21	-	-
Furnace Blower Fan[1]	30	30	24	6	0	0	-	30	0	0.0	0	2.3	3,571	3,571	(0)	(12)	(3)	0	0	0	0.000	0	0.078	119	119	(0.01)	(0)	(0)	-	-
Exhaust Ventilation[2]	30	30	18	6	0	0	30	30	37,150	-0.1	(882)	(2.1)	(3,180)	(4,062)	(1)	(97)	(33)	0	0	1,238	-0.004	(29)	(0.069)	(106)	(135)	(0.06)	(5)	(6)	-	-
Total Heating System Repl	25	5	15	5	0	0	-	5	106,245	0.0	0	0.6	950	950	23	2,126	671	0	0	4,250	0.000	0	0.124	190	190	1.55	142	134	-	-
Condensing Htg Sys Rep	19	0	14	5	0	0	-	-	69,595	0.0	0	0.0	0	0	22	2,050	671	0	0	3,663	-	-	-	-	-	1.60	146	134	-	-
Non-Cond Htg Sys Repl	1	0	1	0	0	0	-	-	3,000	0.0	0	0.0	0	0	1	76	0	0	0	3,000	-	-	-	-	-	0.84	76	-	-	-
Electric Htg Sys Repl	1	1	0	0	0	0	-	1	2,650	0.0	0	0.1	157	157	0	0	0	0	0	2,650	0.000	0	0.103	157	157	-	-	-	-	-
Heat Pump Repl	5	5	0	0	0	0	-	5	31,000	0.0	0	0.5	793	793	0	0	0	0	0	6,200	0.000	0	0.104	159	159	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-

	Number of Measures Installed by Fuel Type: Total	Electric	Gas	Propane	Fuel Oil	Other		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Water Heating	39	18	19	2	0	0	26,003	0.0	0.1	3,958	1.9	377	85	0	0	667	0.000	0.004	220	0.097	20	42	-	-
Temp. Reduct.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Pipe Insul.	39	18	19	2	0	0	760	0.0	0.0	876	0.2	56	6	0	0	19	0.000	0.000	49	0.01	3	3	-	-
LF Showerhead	25	11	13	1	0	0	343	0.0	0.0	2,184	0.3	94	8	0	0	14	0.000	0.005	199	0.02	7	8	-	-
Faucet Aerator	1	0	1	0	0	0	5	0.0	0.0	0	0.0	1	0	0	0	5	-	-	-	0.00	1	-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	15	6	7	2	0	0	24,895	0.0	0.0	898	1.4	225	71	0	0	1,660	0.000	0.004	150	0.20	32	36	-	-
Lighting	37	37					3,784	1.8	3.3	16,797	-	-	-	-	-	102	0.048	0.088	454	-	-	-	-	-
Refrigerator/Freezer[3]	18	18					12,331	1.5	1.4	12,104	-	-	-	-	-	685	0.083	0.077	672	-	-	-	-	-
Refrigerator Removal	1	1					20	0.1	0.1	1,023	-	-	-	-	-	20	0.126	0.118	1,023	-	-	-	-	-
Refrigerator Exchange	13	13					9,902	0.9	0.9	7,542	-	-	-	-	-	762	0.071	0.067	580	-	-	-	-	-
Freezer Removal	0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Freezer Exchange	6	6					2,409	0.4	0.4	3,538	-	-	-	-	-	402	0.073	0.068	590	-	-	-	-	-

Total Non-Efficiency Measures	40																							
							263,164																	
																6,579								
Misc Ins,Attic Access/Vent	32						15,544									486								
Duct Sealing	6						1,665									278								
Duct Insulation	0						0									0								
Damming Material	8						238									30								
Htg. Sys. Tune & Clean	7						1,580									226								
Htg. Sys./WH Other	15						7,784									519								
Air Conditioning Work	0						0									0								
Water Heater Repair	13						1,350									104								
Refrigerator Coil Clean	0						0									0								
Waterbed Mattress Pad	0						0									0								
Programmable Tstat	1						100									100								
Unspecified Utility Meas	0						0									0								
CO Detector	40						3,906									98								
Smoke Detector	36						4,156									115								
Fuses	0						0									0								
Htg Sys Safety Check	0						0									0								
Htg Sys Ventilation	14						3,225									230								
Water Heater Ventilation	7						1,355									194								
Bathroom Ventilation	16						4,505									282								
Dryer Ventilation	33						7,450									226								
Kitchen Ventilation	0						0									0								
Other Exhaust Ventilation	6						390									65								
Asbestos Removal (Minor)	0						0									0								
Health/Safety Repairs	29						14,042									484								
Health/Safety Other	5						330									66								
Consumables	1						35									35								
General Repairs	40						38,788									970								
Meter Refrig (no action)	25						0									0								
Meter Freezer (no action)	11						0									0								
Support	40						156,721									3,918								
Transportation Allowance	0						0									0								
Landlord Contr Misc	0						0									0								
Landlord Contr Furnace	0						0									0								
Landlord Contr DHW	0						0									0								
Client Contr (Any)	0						0									0								
Lead Safe Work	0						0									0								
Unspecifed/Other	0						0									0								

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Des Moines County Community Action

Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $2,139,672

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $2,139,672

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Dwellings with kWh Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Total Efficiency Measures	**149**	**149**	**138**	**3**	**0**	**0**	**149**	**149**	**1,141,056**	**37.0**		**35.0**		**119,104**	**373**	**35,639**	**861**	**0**	**0**	**7,658**	**0.248**		**0.235**		**799**	**2.71**	**258**	**287**	**-**	**-**
Total Shell & Htg. Sys. Repl	149	149	138	3	0	0	148	149	919,624	33.0	36,721	29.6	44,498	81,219	347	30,792	779	0	0	6,172	0.223	248	0.199	299	545	2.51	223	260	-	-
Total Shell Measures	149	149	138	3	0	0	148	149	713,782	33.0	36,721	29.5	44,394	81,116	244	21,686	495	0	0	4,790	0.223	248	0.198	298	544	1.77	157	165	-	-
Wall Insul.	101	84	96	3	0	0	84	2	201,499	13.2	15,959	1.7	2,591	18,550	70	6,206	84	0	0	1,995	0.158	190	0.840	1,296	221	0.73	65	28	-	-
Open Blown Ceiling Insul	128	111	118	3	0	0	111	7	122,109	12.4	14,918	10.9	16,399	31,317	94	8,388	235	0	0	954	0.111	134	1.552	2,343	282	0.80	71	78	-	-
Cavity Fill Insul	87	71	81	2	0	0	71	4	55,665	2.8	3,378	1.8	2,807	6,184	25	2,218	128	0	0	640	0.039	48	0.451	702	87	0.31	27	64	-	-
Sloped Attic Insul	30	26	29	0	0	0	26	1	12,545	1.0	1,210	0.4	694	1,904	8	742	0	0	0	418	0.039	47	0.444	694	73	0.29	26	-	-	-
Kneewall Insul	50	42	47	0	0	0	42	3	14,842	0.9	1,025	1.1	1,560	2,585	7	598	0	0	0	297	0.020	24	0.352	520	62	0.14	13	-	-	-
Infil. Reduction	149	126	138	3	0	0	126	8	134,855	2.3	2,824	1.2	1,790	4,614	29	2,567	26	0	0	905	0.019	22	0.149	224	37	0.21	19	9	-	-
Found./Crawl. Insul	67	12	64	2	0	0	12	1	69,798	0.8	983	0.8	1,273	2,256	19	1,707	41	0	0	1,042	0.068	82	0.815	1,273	188	0.30	27	20	-	-
Bandjoist Insul.	14	1	13	0	0	0	-	1	2,836	0.0	0	0.2	250	250	1	99	0	0	0	203	0.000	0	0.170	250	250	0.09	8	-	-	-
Furnace Blower Fan[1]	141	141	138	3	0	0	-	141	0	0.0	0	15.9	23,670	23,670	(1)	(100)	(2)	0	0	0	0.000	0	0.113	168	168	(0.01)	(1)	(1)	-	-
Exhaust Ventilation[2]	146	146	135	3	0	0	146	146	99,633	-0.4	(3,576)	(4.4)	(6,639)	(10,215)	(8)	(738)	(17)	0	0	682	-0.003	(24)	(0.030)	(45)	(70)	(0.06)	(5)	(6)	-	-
Total Heating System Repl	92	1	88	3	0	0	-	1	205,842	0.0	0	0.1	104	104	102	9,105	284	0	0	2,237	0.000	0	0.066	104	104	1.16	103	95	-	-
Condensing Htg Sys Rep	80	0	77	3	0	0	-	-	178,460	0.0	0	0.0	0	0	90	7,992	284	0	0	2,231	-	-	-	-	-	1.17	104	95	-	-
Non-Cond Htg Sys Repl	11	0	11	0	0	0	-	-	24,775	0.0	0	0.0	0	0	12	1,113	0	0	0	2,252	-	-	-	-	-	1.13	101	-	-	-
Electric Htg Sys Repl	1	1	0	0	0	0	-	1	2,607	0.0	0	0.1	104	104	0	0	0	0	0	2,607	0.000	0	0.066	104	104	-	-	-	-	-
Heat Pump Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-

	Number of Measures Installed by Fuel Type: Total	Electric	Gas	Propane	Fuel Oil	Other		Billing Adjusted First-Year Savings: Summer kW	Winter kW	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Summer kW	Winter kW	Annual kWh	Gas Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu
Water Heating	148	14	132	2	0	0	515	43	465	7	0	0	194,794	0.0	0.0	2,741	26.9	4,847	82	0	0	1,316	0.000	0.003	196	0.204	37	41	-	-
Temp. Reduct.	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	-	-	-	-	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	-	-	-	-	-	-	-	-	-
Pipe Insul.	147	14	131	2	0	0	147	14	131	2	0	0	2,483	0.0	0.0	673	1.2	401	6	0	0	17	0.000	0.000	48	0.01	3	3	-	-
LF Showerhead	38	3	34	1	0	0	43	4	38	1	0	0	410	0.0	0.0	568	0.8	260	8	0	0	11	0.000	0.003	189	0.02	8	8	-	-
Faucet Aerator	115	11	102	2	0	0	211	20	189	2	0	0	1,010	0.0	0.0	730	0.9	278	3	0	0	9	0.000	0.002	66	0.01	3	1	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	0	0	-	-	-	-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	114	5	107	2	0	0	114	5	107	2	0	0	190,892	0.0	0.0	769	24.0	3,909	65	0	0	1,674	0.000	0.004	154	0.22	37	33	-	-
Lighting	104	104					1,043	1,043					7,231	1.7	3.2	16,471	-	-	-	-	-	70	0.017	0.031	158	-	-	-	-	-
Refrigerator/Freezer[3]	32	32					36	36					19,407	2.3	2.1	18,673	-	-	-	-	-	606	0.072	0.067	584	-	-	-	-	-
Refrigerator Removal	0	0					0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Refrigerator Exchange	32	32					36	36					19,407	2.3	2.1	18,673	-	-	-	-	-	606	0.072	0.067	584	-	-	-	-	-
Freezer Removal	0	0					0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-
Freezer Exchange	0	0					0	0					0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-

Total Non-Efficiency Measures	149	**998,616**		**6,702**
Misc Ins,Attic Access/Vent	140	45,052		322
Duct Sealing	50	11,768		235
Duct Insulation	123	9,309		76
Damming Material	107	15,600		146
Htg. Sys. Tune & Clean	45	18,410		409
Htg. Sys./WH Other	17	5,489		323
Air Conditioning Work	0	0		0
Water Heater Repair	3	420		140
Refrigerator Coil Clean	0	0		0
Waterbed Mattress Pad	0	0		0
Programmable Tstat	0	0		0
Unspecified Utility Meas	0	0		0
CO Detector	144	10,185		71
Smoke Detector	94	3,800		40
Fuses	0	0		0
Htg Sys Safety Check	0	0		0
Htg Sys Ventilation	94	18,216		194
Water Heater Ventilation	103	18,925		184
Bathroom Ventilation	147	28,044		191
Dryer Ventilation	136	18,195		134
Kitchen Ventilation	0	0		0
Other Exhaust Ventilation	1	40		40
Asbestos Removal (Minor)	0	0		0
Health/Safety Repairs	128	58,103		454
Health/Safety Other	49	4,008		82
Consumables	0	0		0
General Repairs	142	130,384		918
Meter Refrig (no action)	117	0		0
Meter Freezer (no action)	45	0		0
Support	147	582,709		3,964
Transportation Allowance	0	0		0
Landlord Contr Misc	0	0		0
Landlord Contr Furnace	0	0		0
Landlord Contr DHW	0	0		0
Client Contr (Any)	0	0		0
Lead Safe Work	108	19,960		185
Unspecifed/Other	0	0		0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

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5. DETAILED SPENDING AND IMPACT PROFILES BY AGENCY FOR UTILITY EXPENDITURES

This section provides tables of spending and impacts by agency for utility expenditures.

New Opportunities

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $273,344

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $273,344

Measure	Number of Dwellings with Impacts			Number of Dwellings with Electricity Impacts Season		Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings							Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures							
							Electricity					Gas			Electricity					Gas	
							Summer		Winter		Annual	Pk-Day	Annual	Spending on Materials & Labor ($)	Summer		Winter		Annual	Pk-Day	Annual
	Total	Electric	Gas	Cooling	Heating		kW	kWh	kW	kWh	kWh	therms	therms		kW	kWh	kW	kWh	kWh	therms	therms
Total Efficiency Measures	**40**	**37**	**34**	**36**	**37**	**219,317**	**8.8**		**7.0**		**24,998**	**93**	**8,717**	**5,483**	**0.245**		**0.190**		**676**	**2.72**	**256**
Total Shell & Htg. Sys. Repl	40	37	34	35	37	191,305	8.3	10,045	6.1	9,340	19,385	89	8,135	4,783	0.238	287	0.165	252	524	2.62	239
Total Shell Measures	40	37	34	35	37	106,202	8.3	10,045	6.1	9,259	19,304	52	4,709	2,655	0.238	287	0.164	250	522	1.52	139
Wall Insul.	21	19	18	19	1	21,119	2.8	3,373	1.1	1,708	5,080	11	1,025	1,006	0.147	178	1.117	1,708	267	0.62	57
Open Blown Ceiling Insul.	38	34	33	34	1	31,583	2.8	3,434	1.9	2,886	6,320	14	1,232	831	0.084	101	1.888	2,886	186	0.41	37
Cavity Fill Insul.	10	10	8	10	0	6,174	0.5	575	0.0	0	575	4	356	617	0.048	57	0.000	0	57	0.49	45
Sloped Attic Insul.	24	21	20	20	2	10,614	1.3	1,509	0.8	1,273	2,782	10	923	442	0.063	75	0.416	636	132	0.51	46
Kneewall Insul.	15	13	13	13	0	5,692	0.3	413	0.0	0	413	3	250	379	0.026	32	0.000	0	32	0.21	19
Infil. Reduction	38	34	23	34	2	17,928	0.4	438	0.1	205	643	2	175	472	0.011	13	0.067	103	19	0.08	8
Found./Crawl. Insul.	17	5	16	4	1	8,953	0.3	304	0.2	381	685	2	207	527	0.063	76	0.249	381	137	0.14	13
Bandjoist Insul.	29	2	27	-	2	4,137	0.0	0	0.5	704	704	6	549	143	0.000	0	0.230	352	352	0.22	20
Furnace Blower Fan[1]	38	35	34	-	35	0	0.0	0	1.4	2,102	2,102	(0)	(8)	0	0.000	0	0.039	60	60	(0.00)	(0)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	32	1	31	-	1	85,104	0.0	0	0.1	82	82	38	3,426	2,659	0.000	0	0.053	82	82	1.21	111
Condensing Htg Sys Repl	31	0	31	-	-	81,604	0.0	0	0.0	0	0	38	3,426	2,632	-	-	-	-	-	1.21	111
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	1	1	0	-	1	3,500	0.0	0	0.1	82	82	0	0	3,500	0.000	0	0.053	82	82	-	-
Heat Pump Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-

	Number of Measures by Fuel Type																			
	Total	Electric	Gas	Total	Electric	Gas		Summer kW		Winter kW		Annual kWh	Pk-Day therms	Annual therms		Summer kW		Winter kW		Annual kWh	Pk-Day therms	Annual therms
Water Heating	37	12	25	41	12	29	27,136	0.0		0.0		899	3.5	582	733	0.000		0.001		75	0.138	23
Temp. Reduct.	0	0	0	0	0	0	0	0.0		0.0		0	0.0	0	0	-		-		-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0		0.0		0	0.0	0	0	-		-		-	-	-
Pipe Insul.	17	8	9	17	8	9	153	0.0		0.0		353	0.1	26	9	0.000		0.000		44	0.01	3
LF Showerhead	0	0	0	0	0	0	0	0.0		0.0		0	0.0	0	0	-		-		-	-	-
Faucet Aerator	4	0	4	6	0	6	20	0.0		0.0		0	0.0	8	5	-		-		-	0.01	2
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0		0.0		0	0.0	0	0	-		-		-	-	-
Hi-Eff or Electric Wtr Htr Repl.	20	4	16	18	4	14	26,962	0.0		0.0		546	3.4	548	1,348	0.000		0.003		136	0.21	34
Lighting	31	31		207	207		876	0.5		0.9		4,714	-	-	28	0.016		0.029		152	-	-
Refrigerator/Freezer[3]	0	0		0	0		0	0.0		0.0		0	-	-	0	-		-		-	-	-
Refrigerator Removal	0	0		0	0		0	0.0		0.0		0	-	-	0	-		-		-	-	-
Refrigerator Exchange	0	0		0	0		0	0.0		0.0		0	-	-	0	-		-		-	-	-
Freezer Removal	0	0		0	0		0	0.0		0.0		0	-	-	0	-		-		-	-	-
Freezer Exchange	0	0		0	0		0	0.0		0.0		0	-	-	0	-		-		-	-	-

Total Non-Efficiency Measures	40	**54,028**	**1,351**
Misc Ins,Attic Access/Vent	22	4,432	201
Duct Sealing	0	0	0
Duct Insulation	1	102	102
Damming Material	0	0	0
Htg. Sys. Tune & Clean	6	750	125
Htg. Sys./WH Other	0	0	0
Air Conditioning Work	0	0	0
Water Heater Repair	0	0	0
Refrigerator Coil Clean	0	0	0
Waterbed Mattress Pad	0	0	0
Programmable Tstat	0	0	0
Unspecified Utility Meas.	0	0	0
CO Detector	0	0	0
Smoke Detector	0	0	0
Fuses	0	0	0
Htg Sys Safety Check	0	0	0
Htg Sys Ventilation	30	5,554	185
Water Heater Ventilation	16	2,938	184
Bathroom Ventilation	0	0	0
Dryer Ventilation	0	0	0
Kitchen Ventilation	0	0	0
Other Exhaust Ventilation	0	0	0
Asbestos Removal (Minor)	0	0	0
Health/Safety Repairs	6	446	74
Health/Safety Other	0	0	0
Consumables	0	0	0
General Repairs	37	11,040	298
Meter Refrig (no action)	0	0	0
Meter Freezer (no action)	0	0	0
Support	40	28,766	719
Transportation Allowance	0	0	0
Landlord Contr Misc	0	0	0
Landlord Contr Furnace	0	0	0
Landlord Contr DHW	0	0	0
Client Contr (Any)	0	0	0
Lead Safe Work	0	0	0
Unspecifed/Other	0	0	0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Hawkeye Area Community Action Program

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $653,648

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $653,648

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Number of Dwellings with Electricity Impacts: Season: Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms
Total Efficiency Measures	**112**	**90**	**100**	**89**	**90**	**531,265**	**14.1**		**15.6**		**58,386**	**192**	**18,712**	**4,743**	**0.159**		**0.173**		**649**	**1.92**	**187**
Total Shell & Htg. Sys. Repl	107	79	99	66	79	413,096	11.3	13,678	11.5	17,702	31,379	178	16,374	3,861	0.172	207	0.145	224	397	1.80	165
Total Shell Measures	107	79	99	66	79	305,198	11.3	13,678	11.3	17,447	31,125	125	11,474	2,852	0.172	207	0.143	221	394	1.26	116
Wall Insul.	50	37	45	37	1	108,004	4.3	5,174	0.9	1,437	6,611	33	3,042	2,160	0.116	140	0.933	1,437	179	0.74	68
Open Blown Ceiling Insul.	73	55	65	55	3	68,945	5.2	6,305	6.3	9,708	16,012	50	4,558	944	0.095	115	2.101	3,236	291	0.76	70
Cavity Fill Insul.	16	8	15	8	0	20,396	0.4	450	0.0	0	450	10	875	1,275	0.047	56	0.000	0	56	0.63	58
Sloped Attic Insul.	20	13	17	13	1	10,815	0.5	589	0.5	773	1,362	6	508	541	0.038	45	0.502	773	105	0.33	30
Kneewall Insul.	27	16	24	16	1	11,884	0.4	432	0.1	156	588	4	337	440	0.022	27	0.101	156	37	0.15	14
Infil. Reduction	86	24	83	24	3	34,361	0.2	222	0.2	303	525	9	854	400	0.008	9	0.066	101	22	0.11	10
Found./Crawl. Insul.	51	9	49	8	2	41,468	0.4	505	0.6	869	1,375	12	1,131	813	0.052	63	0.282	435	153	0.25	23
Bandjoist Insul.	48	2	46	-	2	9,325	0.0	0	0.2	357	357	2	201	194	0.000	0	0.116	179	179	0.05	4
Furnace Blower Fan[1]	104	76	99	-	76	0	0.0	0	2.5	3,844	3,844	(0)	(32)	0	0.000	0	0.033	51	51	(0.00)	(0)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	46	2	44	-	2	107,898	0.0	0	0.2	255	255	53	4,900	2,346	0.000	0	0.083	127	127	1.21	111
Condensing Htg Sys Repl	44	0	44	-	-	101,358	0.0	0	0.0	0	0	53	4,900	2,304	-	-	-	-	-	1.21	111
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	2	2	0	-	2	6,540	0.0	0	0.2	255	255	0	0	3,270	0.000	0	0.083	127	127	-	-
Heat Pump Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-

	Number of Measures by Fuel Type: Total	Electric	Gas				Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms
Water Heating	102	25	77	166	32	134	102,879	0.0	0.0	2,049	13.5	2,338	1,009	0.000	0.001	82	0.176	30
Temp. Reduct.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Pipe Insul.	101	25	76	101	25	76	1,879	0.0	0.0	1,102	0.7	241	19	0.000	0.000	44	0.01	3
LF Showerhead	1	0	1	1	0	1	10	0.0	0.0	0	0.0	11	10	-	-	-	0.04	11
Faucet Aerator	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	74	9	65	64	7	57	100,990	0.0	0.0	947	12.8	2,087	1,365	0.000	0.003	105	0.20	32
Lighting	70	70		510	510		3,764	1.6	3.0	15,252	-	-	54	0.023	0.042	218	-	-
Refrigerator/Freezer[3]	19	19		19	19		11,526	1.2	1.1	9,705	-	-	607	0.063	0.059	511	-	-
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Refrigerator Exchange	19	19		19	19		11,526	1.2	1.1	9,705	-	-	607	0.063	0.059	511	-	-
Freezer Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Freezer Exchange	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-

Total Non-Efficiency Measures	112	**122,383**	**1,093**
Misc Ins,Attic Access/Vent	17	1,711	101
Duct Sealing	42	10,284	245
Duct Insulation	3	2,945	982
Damming Material	0	0	0
Htg. Sys. Tune & Clean	54	4,515	84
Htg. Sys./WH Other	0	0	0
Air Conditioning Work	0	0	0
Water Heater Repair	0	0	0
Refrigerator Coil Clean	0	0	0
Waterbed Mattress Pad	0	0	0
Programmable Tstat	0	0	0
Unspecified Utility Meas.	0	0	0
CO Detector	0	0	0
Smoke Detector	0	0	0
Fuses	0	0	0
Htg Sys Safety Check	0	0	0
Htg Sys Ventilation	42	6,229	148
Water Heater Ventilation	53	8,001	151
Bathroom Ventilation	0	0	0
Dryer Ventilation	0	0	0
Kitchen Ventilation	0	0	0
Other Exhaust Ventilation	0	0	0
Asbestos Removal (Minor)	0	0	0
Health/Safety Repairs	5	258	52
Health/Safety Other	0	0	0
Consumables	0	0	0
General Repairs	65	19,587	301
Meter Refrig (no action)	10	0	0
Meter Freezer (no action)	3	0	0
Support	112	68,855	615
Transportation Allowance	0	0	0
Landlord Contr Misc	0	0	0
Landlord Contr Furnace	0	0	0
Landlord Contr DHW	0	0	0
Client Contr (Any)	0	0	0
Lead Safe Work	0	0	0
Unspecifed/Other	0	0	0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Community Action of Eastern Iowa

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $734,377
Utility Administration Expenditures: -
Total Labor and Material Expenditures: $734,377

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Number of Dwellings with Electricity Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Gas Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Gas Annual therms
Total Efficiency Measures	**113**	**97**	**111**	**97**	**97**	**598,294**	**15.4**		**7.5**		**44,023**	**228**	**22,160**	**5,295**	**0.159**		**0.077**		**454**	**2.06**	**200**
Total Shell & Htg. Sys. Repl	113	94	111	93	94	472,648	13.4	16,183	4.8	7,385	23,568	215	19,746	4,183	0.144	174	0.051	79	251	1.94	178
Total Shell Measures	113	94	111	93	94	236,610	13.4	16,183	4.8	7,385	23,568	113	10,393	2,094	0.144	174	0.051	79	251	1.02	94
Wall Insul.	66	55	65	55	0	109,047	6.4	7,720	0.0	0	7,720	44	4,052	1,652	0.116	140	0.000	0	140	0.68	62
Open Blown Ceiling Insul.	68	55	67	55	0	41,137	4.3	5,211	0.0	0	5,211	33	2,987	605	0.079	95	0.000	0	95	0.49	45
Cavity Fill Insul.	24	15	24	15	0	10,804	0.8	942	0.0	0	942	13	1,200	450	0.052	63	0.000	0	63	0.54	50
Sloped Attic Insul.	20	16	19	16	0	6,388	0.7	849	0.0	0	849	8	697	319	0.044	53	0.000	0	53	0.40	37
Kneewall Insul.	22	15	21	15	0	7,314	0.2	212	0.0	0	212	3	271	332	0.012	14	0.000	0	14	0.14	13
Infil. Reduction	113	89	111	89	1	48,888	0.7	894	0.1	118	1,012	11	1,047	433	0.008	10	0.077	118	11	0.10	9
Found./Crawl. Insul.	17	6	16	6	0	5,429	0.3	355	0.0	0	355	1	115	319	0.049	59	0.000	0	59	0.08	7
Bandjoist Insul.	16	0	16	-	0	7,604	0.0	0	0.0	0	0	1	51	475	-	-	-	-	-	0.03	3
Furnace Blower Fan[1]	112	93	111	-	93	0	0.0	0	4.7	7,267	7,267	(0)	(27)	0	0.000	0	0.051	78	78	(0.00)	(0)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	82	0	82	-	0	236,038	0.0	0	0.0	0	0	102	9,353	2,879	-	-	-	-	-	1.24	114
Condensing Htg Sys Repl	82	0	82	-	-	236,038	0.0	0	0.0	0	0	102	9,353	2,879	-	-	-	-	-	1.24	114
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Heat Pump Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
	Total	**Electric**	**Gas**	**Number of Measures by Fuel Type: Total**	**Electric**	**Gas**		**Summer kW**		**Winter kW**	**Annual kWh**	**Pk-Day therms**	**Annual therms**		**Summer kW**		**Winter kW**		**Annual kWh**	**Pk-Day therms**	**Annual therms**
Water Heating	108	23	85	271	44	227	111,928	0.0		0.1	3,260	13.4	2,414	1,036	0.000		0.002		142	0.158	28
Temp. Reduct.	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
Pipe Insul.	102	22	80	102	22	80	1,936	0.0		0.0	953	0.7	231	19	0.000		0.000		43	0.01	3
LF Showerhead	20	5	15	21	5	16	210	0.0		0.0	875	0.4	108	10	0.000		0.004		175	0.02	7
Faucet Aerator	58	6	52	81	8	73	404	0.0		0.0	263	0.3	99	7	0.000		0.001		44	0.01	2
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
Hi-Eff or Electric Wtr Htr Repl.	78	12	66	67	9	58	109,378	0.0		0.0	1,169	12.1	1,976	1,402	0.000		0.002		97	0.18	30
Lighting	75	75		478	478		3,313	0.8		1.6	8,041	-	-	44	0.011		0.021		107	-	-
Refrigerator/Freezer[3]	17	17		18	18		10,405	1.1		1.1	9,154	-	-	612	0.066		0.062		538	-	-
Refrigerator Removal	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Refrigerator Exchange	12	12		12	12		7,465	0.7		0.7	6,007	-	-	622	0.062		0.058		501	-	-
Freezer Removal	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Freezer Exchange	6	6		6	6		2,940	0.4		0.4	3,147	-	-	490	0.065		0.060		525	-	-
Total Non-Efficiency Measures	113					**136,083**								**1,204**							
Misc Ins,Attic Access/Vent	56					3,912								70							
Duct Sealing	1					270								270							
Duct Insulation	0					0								0							
Damming Material	0					0								0							
Htg. Sys. Tune & Clean	0					0								0							
Htg. Sys./WH Other	0					0								0							
Air Conditioning Work	0					0								0							
Water Heater Repair	0					0								0							
Refrigerator Coil Clean	0					0								0							
Waterbed Mattress Pad	0					0								0							
Programmable Tstat	71					6,947								98							
Unspecified Utility Meas.	0					0								0							
CO Detector	0					0								0							
Smoke Detector	0					0								0							
Fuses	0					0								0							
Htg Sys Safety Check	0					0								0							
Htg Sys Ventilation	75					11,733								156							
Water Heater Ventilation	58					7,361								127							
Bathroom Ventilation	0					0								0							
Dryer Ventilation	0					0								0							
Kitchen Ventilation	0					0								0							
Other Exhaust Ventilation	0					0								0							
Asbestos Removal (Minor)	0					0								0							
Health/Safety Repairs	34					2,061								61							
Health/Safety Other	0					0								0							
Consumables	0					0								0							
General Repairs	97					24,687								255							
Meter Refrig (no action)	68					0								0							
Meter Freezer (no action)	26					0								0							
Support	113					79,113								700							
Transportation Allowance	0					0								0							
Landlord Contr Misc	0					0								0							
Landlord Contr Furnace	0					0								0							
Landlord Contr DHW	0					0								0							
Client Contr (Any)	0					0								0							
Lead Safe Work	0					0								0							
Unspecifed/Other	0					0								0							

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

MATURA Action Corporation

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $29,152
Utility Administration Expenditures: -
Total Labor and Material Expenditures: $29,152

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Number of Dwellings with Electricity Impacts: Season: Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms
Total Efficiency Measures	**7**	**6**	**6**	**5**	**6**	**23,171**	**0.8**		**0.5**		**1,633**	**6**	**572**	**3,310**	**0.150**		**0.084**		**272**	**0.99**	**95**
Total Shell & Htg. Sys. Repl	6	6	5	5	6	15,571	0.8	907	0.5	726	1,633	5	453	2,595	0.150	181	0.084	121	272	1.05	91
Total Shell Measures	6	6	5	5	6	9,471	0.8	907	0.5	726	1,633	2	198	1,579	0.150	181	0.084	121	272	0.46	40
Wall Insul.	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Open Blown Ceiling Insul.	4	4	3	3	1	5,463	0.4	446	0.4	510	955	0	36	1,366	0.123	149	0.353	510	239	0.14	12
Cavity Fill Insul.	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Sloped Attic Insul.	1	1	1	1	0	1,107	0.2	203	0.0	0	203	1	87	1,107	0.168	203	0.000	0	203	1.01	87
Kneewall Insul.	2	2	2	2	0	322	0.0	27	0.0	0	27	0	8	161	0.011	13	0.000	0	13	0.05	4
Infil. Reduction	4	4	4	4	0	1,587	0.0	41	0.0	0	41	1	45	397	0.008	10	0.000	0	10	0.13	11
Found./Crawl. Insul.	2	2	2	2	0	992	0.2	190	0.0	0	190	0	22	496	0.079	95	0.000	0	95	0.13	11
Bandjoist Insul.	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Furnace Blower Fan[1]	5	5	5	-	5	0	0.0	0	0.1	217	217	(0)	(1)	0	0.000	0	0.030	43	43	(0.00)	(0)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	2	0	2	-	0	6,100	0.0	0	0.0	0	0	3	256	3,050	-	-	-	-	-	1.48	128
Condensing Htg Sys Repl	2	0	2	-	-	6,100	0.0	0	0.0	0	0	3	256	3,050	-	-	-	-	-	1.48	128
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Heat Pump Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-

	Number of Measures by Fuel Type: Total	Electric	Gas		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms
Water Heating	8	0	8	7,600	0.0	0.0	0	0.7	118	1,267	-	-	-	0.113	20
Temp. Reduct.	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
WH Wrap	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Pipe Insul.	5	0	5	100	0.0	0.0	0	0.0	14	20	-	-	-	0.01	3
LF Showerhead	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Faucet Aerator	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	3	0	3	7,500	0.0	0.0	0	0.6	104	1,500	-	-	-	0.13	21
Lighting	0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Refrigerator/Freezer[3]	0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Refrigerator Removal	0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Refrigerator Exchange	0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Freezer Removal	0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Freezer Exchange	0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-

Total Non-Efficiency Measures	6	**5,981**	**997**
Misc Ins,Attic Access/Vent	2	233	117
Duct Sealing	0	0	0
Duct Insulation	0	0	0
Damming Material	0	0	0
Htg. Sys. Tune & Clean	1	125	125
Htg. Sys./WH Other	0	0	0
Air Conditioning Work	0	0	0
Water Heater Repair	0	0	0
Refrigerator Coil Clean	0	0	0
Waterbed Mattress Pad	0	0	0
Programmable Tstat	0	0	0
Unspecified Utility Meas.	0	0	0
CO Detector	0	0	0
Smoke Detector	0	0	0
Fuses	0	0	0
Htg Sys Safety Check	0	0	0
Htg Sys Ventilation	3	700	233
Water Heater Ventilation	3	650	217
Bathroom Ventilation	0	0	0
Dryer Ventilation	0	0	0
Kitchen Ventilation	0	0	0
Other Exhaust Ventilation	0	0	0
Asbestos Removal (Minor)	0	0	0
Health/Safety Repairs	1	63	63
Health/Safety Other	0	0	0
Consumables	0	0	0
General Repairs	6	1,779	297
Meter Refrig (no action)	1	0	0
Meter Freezer (no action)	1	0	0
Support	4	2,431	608
Transportation Allowance	0	0	0
Landlord Contr Misc	0	0	0
Landlord Contr Furnace	0	0	0
Landlord Contr DHW	0	0	0
Client Contr (Any)	0	0	0
Lead Safe Work	0	0	0
Unspecifed/Other	0	0	0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Mid-Iowa Community Action

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $493,727

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $493,727

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Number of Dwellings with Electricity Impacts: Season: Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms
Total Efficiency Measures	**92**	**81**	**73**	**79**	**81**	**400,025**	**15.5**		**10.9**		**43,514**	**144**	**14,019**	**4,348**	**0.196**		**0.135**		**537**	**1.98**	**192**
Total Shell & Htg. Sys. Repl	91	80	73	76	80	336,370	14.4	17,374	9.5	14,825	32,199	137	12,745	3,696	0.190	229	0.119	185	402	1.87	175
Total Shell Measures	91	80	73	76	80	245,033	14.4	17,374	9.5	14,825	32,199	85	7,906	2,693	0.190	229	0.119	185	402	1.16	108
Wall Insul.	61	50	48	50	2	102,718	6.1	7,374	1.2	1,920	9,294	38	3,569	1,684	0.122	147	0.615	960	186	0.80	74
Open Blown Ceiling Insul.	71	58	57	58	4	48,295	4.5	5,427	3.1	4,915	10,342	14	1,331	680	0.078	94	0.787	1,229	178	0.25	23
Cavity Fill Insul.	22	18	19	18	1	17,830	1.0	1,224	1.6	2,458	3,682	9	880	810	0.056	68	1.574	2,458	205	0.50	46
Sloped Attic Insul.	30	23	25	23	0	13,904	1.2	1,463	0.0	0	1,463	9	830	463	0.053	64	0.000	0	64	0.36	33
Kneewall Insul.	26	20	22	20	1	9,788	0.4	451	0.1	171	622	2	215	376	0.019	23	0.109	171	31	0.10	10
Infil. Reduction	85	67	67	67	5	29,229	0.5	604	0.2	272	876	4	411	344	0.007	9	0.035	54	13	0.07	6
Found./Crawl. Insul.	36	13	33	13	1	17,537	0.7	831	0.0	24	855	6	526	487	0.053	64	0.015	24	66	0.17	16
Bandjoist Insul.	40	2	38	-	2	5,733	0.0	0	0.2	326	326	2	163	143	0.000	0	0.104	163	163	0.05	4
Furnace Blower Fan[1]	86	75	73	-	75	0	0.0	0	3.0	4,739	4,739	(0)	(20)	0	0.000	0	0.040	63	63	(0.00)	(0)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	44	0	44	-	0	91,337	0.0	0	0.0	0	0	52	4,840	2,076	-	-	-	-	-	1.18	110
Condensing Htg Sys Repl	44	0	44	-	-	91,337	0.0	0	0.0	0	0	52	4,840	2,076	-	-	-	-	-	1.18	110
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Heat Pump Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-

Measure	Number of Measures by Fuel Type: Total	Electric	Gas	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms
Water Heating	65	24	41	57,529	0.0	0.0	2,146	7.6	1,274	885	0.000	0.001	89	0.184	31
Temp. Reduct.	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
WH Wrap	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Pipe Insul.	44	20	24	198	0.0	0.0	899	0.2	68	4	0.000	0.000	45	0.01	3
LF Showerhead	2	1	1	9	0.0	0.0	218	0.0	7	5	0.000	0.005	218	0.02	7
Faucet Aerator	3	0	3	7	0.0	0.0	0	0.0	4	2	-	-	-	0.00	1
Std-Eff Wtr Htr Repl.	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	44	8	36	57,315	0.0	0.0	1,029	7.3	1,195	1,303	0.000	0.003	129	0.20	33
Lighting	34	34		591	0.5	0.9	4,564	-	-	17	0.014	0.026	134	-	-
Refrigerator/Freezer[3]	9	9		5,535	0.6	0.5	4,605	-	-	615	0.063	0.059	512	-	-
Refrigerator Removal	0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Refrigerator Exchange	9	9		5,535	0.6	0.5	4,605	-	-	615	0.063	0.059	512	-	-
Freezer Removal	0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Freezer Exchange	0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-

Measure	Total	Spending on Materials & Labor ($)	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)
Total Non-Efficiency Measures	92	**93,703**	**1,019**
Misc Ins,Attic Access/Vent	59	14,159	240
Duct Sealing	0	0	0
Duct Insulation	0	0	0
Damming Material	0	0	0
Htg. Sys. Tune & Clean	12	1,087	91
Htg. Sys./WH Other	0	0	0
Air Conditioning Work	0	0	0
Water Heater Repair	0	0	0
Refrigerator Coil Clean	0	0	0
Waterbed Mattress Pad	0	0	0
Programmable Tstat	0	0	0
Unspecified Utility Meas.	0	0	0
CO Detector	0	0	0
Smoke Detector	0	0	0
Fuses	0	0	0
Htg Sys Safety Check	0	0	0
Htg Sys Ventilation	46	6,483	141
Water Heater Ventilation	36	3,326	92
Bathroom Ventilation	0	0	0
Dryer Ventilation	0	0	0
Kitchen Ventilation	0	0	0
Other Exhaust Ventilation	0	0	0
Asbestos Removal (Minor)	0	0	0
Health/Safety Repairs	18	696	39
Health/Safety Other	0	0	0
Consumables	0	0	0
General Repairs	85	23,066	271
Meter Refrig (no action)	56	0	0
Meter Freezer (no action)	13	0	0
Support	92	44,886	488
Transportation Allowance	0	0	0
Landlord Contr Misc	0	0	0
Landlord Contr Furnace	0	0	0
Landlord Contr DHW	0	0	0
Client Contr (Any)	0	0	0
Lead Safe Work	0	0	0
Unspecifed/Other	0	0	0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Mid-Sioux Opportunity

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $120,318
Utility Administration Expenditures: -
Total Labor and Material Expenditures: $120,318

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Number of Dwellings with Electricity Impacts by Season: Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Gas Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Gas Annual therms
Total Efficiency Measures	**21**	**20**	**19**	**19**	**20**	**99,813**	**4.5**		**2.0**		**13,208**	**33**	**3,147**	**4,753**	**0.237**		**0.100**		**660**	**1.74**	**166**
Total Shell & Htg. Sys. Repl	20	20	18	18	20	82,492	3.9	4,666	0.8	1,239	5,905	32	2,890	4,125	0.215	259	0.041	62	295	1.76	161
Total Shell Measures	20	20	18	18	20	52,633	3.9	4,666	0.8	1,239	5,905	17	1,534	2,632	0.215	259	0.041	62	295	0.93	85
Wall Insul.	13	12	12	12	0	27,729	1.7	2,072	0.0	0	2,072	9	787	2,133	0.143	173	0.000	0	173	0.72	66
Open Blown Ceiling Insul.	15	15	15	15	0	8,939	1.4	1,675	0.0	0	1,675	3	234	596	0.093	112	0.000	0	112	0.17	16
Cavity Fill Insul.	5	4	5	4	0	4,083	0.2	232	0.0	0	232	2	170	817	0.048	58	0.000	0	58	0.37	34
Sloped Attic Insul.	4	4	4	4	0	2,887	0.3	303	0.0	0	303	2	154	722	0.063	76	0.000	0	76	0.42	38
Kneewall Insul.	4	3	4	3	0	1,669	0.1	75	0.0	0	75	1	74	417	0.021	25	0.000	0	25	0.20	18
Infil. Reduction	19	15	18	15	1	4,290	0.2	234	0.1	87	321	1	80	226	0.013	16	0.057	87	21	0.05	4
Found./Crawl. Insul.	3	1	2	1	0	882	0.1	76	0.0	0	76	0	12	294	0.063	76	0.000	0	76	0.06	6
Bandjoist Insul.	5	0	5	-	0	2,154	0.0	0	0.0	0	0	0	28	431	-	-	-	-	-	0.06	6
Furnace Blower Fan[1]	19	19	18	-	19	0	0.0	0	0.8	1,152	1,152	(0)	(4)	0	0.000	0	0.040	61	61	(0.00)	(0)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	12	0	12	-	0	29,859	0.0	0	0.0	0	0	15	1,356	2,488	-	-	-	-	-	1.24	113
Condensing Htg Sys Repl	12	0	12	-	-	29,859	0.0	0	0.0	0	0	15	1,356	2,488	-	-	-	-	-	1.24	113
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Heat Pump Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
	Total	**Electric**	**Gas**	**Number of Measures by Fuel Type: Total**	**Electric**	**Gas**		**Summer kW**		**Winter kW**	**Annual kWh**	**Pk-Day therms**	**Annual therms**		**Summer kW**		**Winter kW**		**Annual kWh**	**Pk-Day therms**	**Annual therms**
Water Heating	20	9	11	37	16	21	15,928	0.0		0.0	1,270	1.5	257	796	0.000		0.002		141	0.132	23
Temp. Reduct.	1	1	0	1	1	0	0	0.0		0.0	115	0.0	0	0	0.000		0.000		115	-	-
WH Wrap	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
Pipe Insul.	18	8	10	18	8	10	310	0.0		0.0	353	0.1	28	17	0.000		0.000		44	0.01	3
LF Showerhead	1	0	1	1	0	1	10	0.0		0.0	0	0.0	7	10	-		-		-	0.02	7
Faucet Aerator	2	1	1	3	1	2	10	0.0		0.0	33	0.0	3	5	0.000		0.001		33	0.01	3
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
Hi-Eff or Electric Wtr Htr Repl.	15	6	9	14	6	8	15,598	0.0		0.0	768	1.3	219	1,040	0.000		0.003		128	0.15	24
Lighting	16	16		226	226		1,393	0.6		1.2	6,033	-	-	87	0.040		0.073		377	-	-
Refrigerator/Freezer[3]	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Refrigerator Removal	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Refrigerator Exchange	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Freezer Removal	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Freezer Exchange	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Total Non-Efficiency Measures	21					**20,505**								**976**							
Misc Ins,Attic Access/Vent	5					551								110							
Duct Sealing	0					0								0							
Duct Insulation	0					0								0							
Damming Material	0					0								0							
Htg. Sys. Tune & Clean	7					865								124							
Htg. Sys./WH Other	0					0								0							
Air Conditioning Work	0					0								0							
Water Heater Repair	0					0								0							
Refrigerator Coil Clean	0					0								0							
Waterbed Mattress Pad	0					0								0							
Programmable Tstat	0					0								0							
Unspecified Utility Meas.	0					0								0							
CO Detector	0					0								0							
Smoke Detector	0					0								0							
Fuses	0					0								0							
Htg Sys Safety Check	0					0								0							
Htg Sys Ventilation	13					1,522								117							
Water Heater Ventilation	9					1,085								121							
Bathroom Ventilation	0					0								0							
Dryer Ventilation	0					0								0							
Kitchen Ventilation	0					0								0							
Other Exhaust Ventilation	0					0								0							
Asbestos Removal (Minor)	0					0								0							
Health/Safety Repairs	1					48								48							
Health/Safety Other	0					0								0							
Consumables	0					0								0							
General Repairs	19					3,932								207							
Meter Refrig (no action)	0					0								0							
Meter Freezer (no action)	0					0								0							
Support	21					12,502								595							
Transportation Allowance	0					0								0							
Landlord Contr Misc	0					0								0							
Landlord Contr Furnace	0					0								0							
Landlord Contr DHW	0					0								0							
Client Contr (Any)	0					0								0							
Lead Safe Work	0					0								0							
Unspecifed/Other	0					0								0							

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

North Iowa Community Action Organization

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $519,108
Utility Administration Expenditures: -
Total Labor and Material Expenditures: $519,108

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Number of Dwellings with Electricity Impacts: Season: Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms
Total Efficiency Measures	**81**	**72**	**80**	**72**	**72**	**441,706**	**14.2**		**16.5**		**70,576**	**205**	**21,314**	**5,453**	**0.198**		**0.229**		**980**	**2.56**	**266**
Total Shell & Htg. Sys. Repl	81	72	80	58	72	325,689	9.6	11,552	9.9	16,420	27,972	190	18,785	4,021	0.165	199	0.138	228	389	2.38	235
Total Shell Measures	81	72	80	58	72	230,869	9.6	11,552	9.9	16,280	27,832	139	13,707	2,850	0.165	199	0.137	226	387	1.74	171
Wall Insul.	61	43	59	42	1	120,070	3.9	4,754	0.8	1,309	6,063	48	4,771	1,968	0.094	113	0.792	1,309	141	0.82	81
Open Blown Ceiling Insul.	73	54	71	53	1	35,259	3.9	4,683	2.4	3,966	8,649	57	5,608	483	0.073	88	2.400	3,966	160	0.80	79
Cavity Fill Insul.	16	9	16	9	0	13,511	0.2	252	0.0	0	252	6	603	844	0.023	28	0.000	0	28	0.38	38
Sloped Attic Insul.	35	24	34	24	0	23,503	0.9	1,055	0.0	0	1,055	16	1,577	672	0.036	44	0.000	0	44	0.47	46
Kneewall Insul.	17	11	17	11	0	11,644	0.2	256	0.0	0	256	4	397	685	0.019	23	0.000	0	23	0.24	23
Infil. Reduction	45	33	44	33	0	15,782	0.4	447	0.0	0	447	4	399	351	0.011	14	0.000	0	14	0.09	9
Found./Crawl. Insul.	31	2	31	2	0	8,157	0.1	105	0.0	0	105	3	278	263	0.043	52	0.000	0	52	0.09	9
Bandjoist Insul.	19	1	18	-	1	2,943	0.0	0	0.2	298	298	1	119	155	0.000	0	0.180	298	298	0.07	7
Furnace Blower Fan[1]	80	71	80	-	71	0	0.0	0	6.5	10,707	10,707	(0)	(45)	0	0.000	0	0.091	151	151	(0.01)	(1)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	49	1	48	-	1	94,820	0.0	0	0.1	141	141	52	5,079	1,935	0.000	0	0.085	141	141	1.07	106
Condensing Htg Sys Repl	48	0	48	-	-	92,072	0.0	0	0.0	0	0	52	5,079	1,918	-	-	-	-	-	1.07	106
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	1	1	0	-	1	2,748	0.0	0	0.1	141	141	0	0	2,748	0.000	0	0.085	141	141	-	-
Heat Pump Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-

	Number of Measures: Total	Electric	Gas	Number of Measures by Fuel Type: Total	Electric	Gas		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms
Water Heating	78	10	68	261	24	237	84,769	0.0	0.0	1,381	14.0	2,529	1,087	0.000	0.002	138	0.206	37
Temp. Reduct.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Pipe Insul.	74	9	65	74	9	65	318	0.0	0.0	396	0.5	185	4	0.000	0.000	44	0.01	3
LF Showerhead	30	2	28	30	2	28	93	0.0	0.0	350	0.6	193	3	0.000	0.004	175	0.02	7
Faucet Aerator	65	8	57	91	11	80	48	0.0	0.0	378	0.4	108	1	0.000	0.001	47	0.01	2
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	66	2	64	66	2	64	84,310	0.0	0.0	257	12.5	2,042	1,277	0.000	0.003	128	0.20	32
Lighting	60	60		676	676		3,744	2.4	4.5	22,961	-	-	62	0.040	0.074	383	-	-
Refrigerator/Freezer[3]	32	32		35	35		27,504	2.2	2.1	18,262	-	-	860	0.070	0.066	571	-	-
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Refrigerator Exchange	30	30		27	27		23,765	1.7	1.6	14,056	-	-	792	0.058	0.054	469	-	-
Freezer Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Freezer Exchange	8	8		8	8		3,740	0.5	0.5	4,206	-	-	467	0.065	0.060	526	-	-

Total Non-Efficiency Measures	81					**77,402**							**956**					
Misc Ins,Attic Access/Vent	21					3,393							162					
Duct Sealing	0					0							0					
Duct Insulation	0					0							0					
Damming Material	0					0							0					
Htg. Sys. Tune & Clean	20					1,804							90					
Htg. Sys./WH Other	0					0							0					
Air Conditioning Work	0					0							0					
Water Heater Repair	0					0							0					
Refrigerator Coil Clean	0					0							0					
Waterbed Mattress Pad	0					0							0					
Programmable Tstat	0					0							0					
Unspecified Utility Meas.	0					0							0					
CO Detector	0					0							0					
Smoke Detector	0					0							0					
Fuses	0					0							0					
Htg Sys Safety Check	0					0							0					
Htg Sys Ventilation	34					5,220							154					
Water Heater Ventilation	49					4,555							93					
Bathroom Ventilation	0					0							0					
Dryer Ventilation	0					0							0					
Kitchen Ventilation	0					0							0					
Other Exhaust Ventilation	0					0							0					
Asbestos Removal (Minor)	0					0							0					
Health/Safety Repairs	4					318							79					
Health/Safety Other	0					0							0					
Consumables	0					0							0					
General Repairs	41					10,556							257					
Meter Refrig (no action)	0					0							0					
Meter Freezer (no action)	0					0							0					
Support	81					51,557							637					
Transportation Allowance	0					0							0					
Landlord Contr Misc	0					0							0					
Landlord Contr Furnace	0					0							0					
Landlord Contr DHW	0					0							0					
Client Contr (Any)	0					0							0					
Lead Safe Work	0					0							0					
Unspecifed/Other	0					0							0					

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Northeast Iowa Community Action Corporation

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $209,629

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $209,629

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Number of Dwellings with Electricity Impacts: Season: Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms
Total Efficiency Measures	**73**	**61**	**51**	**60**	**61**	**174,075**	**8.1**		**10.9**		**32,248**	**66**	**6,438**	**2,385**	**0.134**		**0.178**		**529**	**1.29**	**126**
Total Shell & Htg. Sys. Repl	72	59	51	53	58	135,548	7.4	8,913	9.9	15,410	24,323	62	5,732	1,883	0.139	168	0.170	266	412	1.21	112
Total Shell Measures	72	59	51	53	58	72,448	7.4	8,913	9.9	15,410	24,323	32	2,998	1,006	0.139	168	0.170	266	412	0.63	59
Wall Insul.	22	16	18	16	2	12,418	2.0	2,356	1.7	2,620	4,976	15	1,366	564	0.122	147	0.839	1,310	311	0.81	76
Open Blown Ceiling Insul.	46	40	39	40	4	19,278	3.7	4,474	2.0	3,118	7,592	6	567	419	0.093	112	0.499	779	190	0.16	15
Cavity Fill Insul.	3	3	3	3	0	987	0.1	177	0.0	0	177	1	75	329	0.049	59	0.000	0	59	0.27	25
Sloped Attic Insul.	5	4	4	4	1	1,824	0.3	358	0.9	1,409	1,767	2	206	365	0.074	90	0.903	1,409	442	0.55	51
Kneewall Insul.	13	11	10	10	3	9,320	0.6	746	2.7	4,160	4,906	2	154	717	0.062	75	0.888	1,387	446	0.17	15
Infil. Reduction	58	32	40	32	4	18,317	0.3	403	1.2	1,807	2,210	5	436	316	0.010	13	0.289	452	69	0.12	11
Found./Crawl. Insul.	10	6	7	6	1	3,930	0.3	398	0.2	269	667	1	79	393	0.055	66	0.172	269	111	0.12	11
Bandjoist Insul.	19	3	16	-	3	6,374	0.0	0	0.4	684	684	1	124	335	0.000	0	0.146	228	228	0.08	8
Furnace Blower Fan[1]	66	53	51	-	53	0	0.0	0	0.9	1,345	1,345	(0)	(9)	0	0.000	0	0.016	25	25	(0.00)	(0)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	25	0	25	-	0	63,100	0.0	0	0.0	0	0	29	2,735	2,524	-	-	-	-	-	1.17	109
Condensing Htg Sys Repl	25	0	25	-	-	63,100	0.0	0	0.0	0	0	29	2,735	2,524	-	-	-	-	-	1.17	109
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Heat Pump Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-

	Number of Measures: Total	Electric	Gas	Number of Measures by Fuel Type: Total	Electric	Gas		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms
Water Heating	53	23	30	70	29	41	35,058	0.0	0.0	1,915	4.1	706	661	0.000	0.001	83	0.137	24
Temp. Reduct.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Pipe Insul.	44	22	22	44	22	22	419	0.0	0.0	984	0.2	63	10	0.000	0.000	45	0.01	3
LF Showerhead	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Faucet Aerator	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	27	7	20	26	7	19	34,640	0.0	0.0	931	3.9	643	1,283	0.000	0.003	133	0.20	32
Lighting	25	25		155	155		446	0.3	0.6	3,325	-	-	18	0.014	0.026	133	-	-
Refrigerator/Freezer[3]	4	4		5	5		3,023	0.3	0.3	2,685	-	-	756	0.083	0.077	671	-	-
Refrigerator Removal	1	1		1	1		40	0.1	0.1	512	-	-	40	0.063	0.059	512	-	-
Refrigerator Exchange	4	4		4	4		2,983	0.3	0.2	2,173	-	-	746	0.067	0.062	543	-	-
Freezer Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Freezer Exchange	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-

Total Non-Efficiency Measures	73	**35,554**	**487**
Misc Ins,Attic Access/Vent	6	419	70
Duct Sealing	0	0	0
Duct Insulation	1	174	174
Damming Material	0	0	0
Htg. Sys. Tune & Clean	6	580	97
Htg. Sys./WH Other	0	0	0
Air Conditioning Work	0	0	0
Water Heater Repair	0	0	0
Refrigerator Coil Clean	0	0	0
Waterbed Mattress Pad	0	0	0
Programmable Tstat	0	0	0
Unspecified Utility Meas.	0	0	0
CO Detector	0	0	0
Smoke Detector	0	0	0
Fuses	0	0	0
Htg Sys Safety Check	0	0	0
Htg Sys Ventilation	26	4,781	184
Water Heater Ventilation	17	2,665	157
Bathroom Ventilation	0	0	0
Dryer Ventilation	0	0	0
Kitchen Ventilation	0	0	0
Other Exhaust Ventilation	0	0	0
Asbestos Removal (Minor)	0	0	0
Health/Safety Repairs	1	111	111
Health/Safety Other	0	0	0
Consumables	0	0	0
General Repairs	44	8,683	197
Meter Refrig (no action)	0	0	0
Meter Freezer (no action)	0	0	0
Support	72	18,141	252
Transportation Allowance	0	0	0
Landlord Contr Misc	0	0	0
Landlord Contr Furnace	0	0	0
Landlord Contr DHW	0	0	0
Client Contr (Any)	0	0	0
Lead Safe Work	0	0	0
Unspecifed/Other	0	0	0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Operation: New View Community Action Agency

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $121,974
Utility Administration Expenditures: -
Total Labor and Material Expenditures: $121,974

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Number of Dwellings with Electricity Impacts: Season: Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms
Total Efficiency Measures	**29**	**26**	**24**	**26**	**26**	**97,662**	**4.4**		**4.8**		**22,638**	**45**	**4,375**	**3,368**	**0.168**		**0.184**		**871**	**1.89**	**182**
Total Shell & Htg. Sys. Repl	27	25	23	20	25	71,132	2.6	3,168	2.1	3,176	6,344	43	3,961	2,635	0.131	158	0.082	127	254	1.87	172
Total Shell Measures	27	25	23	20	25	35,319	2.6	3,168	2.1	3,176	6,344	25	2,260	1,308	0.131	158	0.082	127	254	1.07	98
Wall Insul.	10	6	8	6	1	6,918	0.7	855	0.7	1,103	1,958	5	446	692	0.118	142	0.716	1,103	326	0.61	56
Open Blown Ceiling Insul.	18	14	15	14	1	8,620	1.3	1,564	1.2	1,832	3,396	8	740	479	0.093	112	1.189	1,832	243	0.54	49
Cavity Fill Insul.	6	2	6	2	0	3,686	0.1	98	0.0	0	98	5	464	614	0.041	49	0.000	0	49	0.84	77
Sloped Attic Insul.	6	4	6	4	0	3,501	0.2	251	0.0	0	251	3	299	583	0.052	63	0.000	0	63	0.54	50
Kneewall Insul.	6	3	6	3	0	763	0.0	60	0.0	0	60	1	49	127	0.017	20	0.000	0	20	0.09	8
Infil. Reduction	22	20	2	20	1	5,972	0.3	341	0.0	9	350	0	19	271	0.014	17	0.006	9	17	0.10	9
Found./Crawl. Insul.	9	0	9	0	0	5,519	0.0	0	0.0	0	0	2	212	613	-	-	-	-	-	0.26	24
Bandjoist Insul.	2	0	2	-	0	340	0.0	0	0.0	0	0	0	36	170	-	-	-	-	-	0.20	18
Furnace Blower Fan[1]	26	24	23	-	24	0	0.0	0	0.2	232	232	(0)	(5)	0	0.000	0	0.006	10	10	(0.00)	(0)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	15	0	15	-	0	35,812	0.0	0	0.0	0	0	19	1,701	2,387	-	-	-	-	-	1.23	113
Condensing Htg Sys Repl	15	0	15	-	-	35,812	0.0	0	0.0	0	0	19	1,701	2,387	-	-	-	-	-	1.23	113
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Heat Pump Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
	Total	Electric	Gas	Number of Measures by Fuel Type: Total	Electric	Gas		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		
Water Heating	26	8	18	35	9	26	16,714	0.0	0.0	503	2.4	414	643	0.000	0.001	63	0.132	23		
Temp. Reduct.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-		
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-		
Pipe Insul.	24	7	17	24	7	17	444	0.0	0.0	310	0.1	52	18	0.000	0.000	44	0.01	3		
LF Showerhead	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-		
Faucet Aerator	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-		
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-		
Hi-Eff or Electric Wtr Htr Repl.	12	2	10	11	2	9	16,270	0.0	0.0	193	2.2	362	1,356	0.000	0.002	96	0.22	36		
Lighting	23	23		260	260		1,743	1.2	2.2	11,263	-	-	76	0.051	0.095	490	-	-		
Refrigerator/Freezer[3]	10	10		9	9		8,074	0.6	0.5	4,528	-	-	807	0.056	0.052	453	-	-		
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-		
Refrigerator Exchange	10	10		9	9		8,074	0.6	0.5	4,528	-	-	807	0.056	0.052	453	-	-		
Freezer Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-		
Freezer Exchange	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-		
Total Non-Efficiency Measures	29					**24,312**								**838**							
Misc Ins,Attic Access/Vent	18					2,257								125							
Duct Sealing	0					0								0							
Duct Insulation	0					0								0							
Damming Material	0					0								0							
Htg. Sys. Tune & Clean	6					523								87							
Htg. Sys./WH Other	0					0								0							
Air Conditioning Work	0					0								0							
Water Heater Repair	0					0								0							
Refrigerator Coil Clean	0					0								0							
Waterbed Mattress Pad	0					0								0							
Programmable Tstat	0					0								0							
Unspecified Utility Meas.	0					0								0							
CO Detector	0					0								0							
Smoke Detector	0					0								0							
Fuses	0					0								0							
Htg Sys Safety Check	0					0								0							
Htg Sys Ventilation	19					4,425								233							
Water Heater Ventilation	10					3,089								309							
Bathroom Ventilation	0					0								0							
Dryer Ventilation	0					0								0							
Kitchen Ventilation	0					0								0							
Other Exhaust Ventilation	0					0								0							
Asbestos Removal (Minor)	0					0								0							
Health/Safety Repairs	1					55								55							
Health/Safety Other	0					0								0							
Consumables	0					0								0							
General Repairs	18					3,166								176							
Meter Refrig (no action)	0					0								0							
Meter Freezer (no action)	0					0								0							
Support	29					10,797								372							
Transportation Allowance	0					0								0							
Landlord Contr Misc	0					0								0							
Landlord Contr Furnace	0					0								0							
Landlord Contr DHW	0					0								0							
Client Contr (Any)	0					0								0							
Lead Safe Work	0					0								0							
Unspecifed/Other	0					0								0							

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Operation Threshold

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $299,948

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $299,948

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Number of Dwellings with Electricity Impacts by Season: Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Gas Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Gas Annual therms
Total Efficiency Measures	**54**	**52**	**48**	**52**	**52**	**246,912**	**10.3**		**8.5**		**29,397**	**109**	**10,744**	**4,572**	**0.198**		**0.163**		**565**	**2.26**	**224**
Total Shell & Htg. Sys. Repl	54	52	48	44	52	194,393	9.9	11,884	7.8	12,244	24,128	101	9,423	3,600	0.224	270	0.151	235	464	2.11	196
Total Shell Measures	54	52	48	44	52	136,574	9.9	11,884	7.8	12,194	24,078	70	6,498	2,529	0.224	270	0.150	235	463	1.45	135
Wall Insul.	41	34	39	34	0	60,932	4.1	4,927	0.0	0	4,927	32	3,011	1,486	0.120	145	0.000	0	145	0.83	77
Open Blown Ceiling Insul.	50	43	45	42	3	26,631	3.5	4,264	2.6	4,090	8,354	17	1,600	533	0.084	102	0.873	1,363	194	0.38	36
Cavity Fill Insul.	19	16	17	16	1	13,538	0.8	982	0.4	669	1,651	8	725	713	0.051	61	0.429	669	103	0.46	43
Sloped Attic Insul.	20	15	19	15	1	6,492	0.5	645	0.4	634	1,279	5	465	325	0.036	43	0.406	634	85	0.26	24
Kneewall Insul.	14	11	12	11	1	2,711	0.2	238	0.1	103	341	2	161	194	0.018	22	0.066	103	31	0.14	13
Infil. Reduction	52	45	47	44	3	18,402	0.5	629	0.1	134	762	4	375	354	0.012	14	0.029	45	17	0.09	8
Found./Crawl. Insul.	10	3	8	3	1	5,286	0.2	199	0.2	353	552	1	76	529	0.055	66	0.226	353	184	0.10	9
Bandjoist Insul.	32	2	30	-	2	2,582	0.0	0	0.3	397	397	1	108	81	0.000	0	0.127	199	199	0.04	4
Furnace Blower Fan[1]	51	49	48	-	49	0	0.0	0	3.7	5,815	5,815	(0)	(22)	0	0.000	0	0.076	119	119	(0.00)	(0)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	29	1	28	-	1	57,819	0.0	0	0.0	50	50	31	2,925	1,994	0.000	0	0.032	50	50	1.12	104
Condensing Htg Sys Repl	28	0	28	-	-	54,319	0.0	0	0.0	0	0	31	2,925	1,940	-	-	-	-	-	1.12	104
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	1	1	0	-	1	3,500	0.0	0	0.0	50	50	0	0	3,500	0.000	0	0.032	50	50	-	-
Heat Pump Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-

	Number of Measures: Total	Electric	Gas	Number of Measures by Fuel Type: Total	Electric	Gas		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms
Water Heating	51	9	42	105	16	89	48,748	0.0	0.0	1,473	7.4	1,322	956	0.000	0.003	164	0.177	31
Temp. Reduct.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Pipe Insul.	51	9	42	51	9	42	980	0.0	0.0	417	0.3	120	19	0.000	0.000	46	0.01	3
LF Showerhead	16	2	14	17	2	15	170	0.0	0.0	393	0.3	97	11	0.000	0.004	197	0.02	7
Faucet Aerator	2	0	2	2	0	2	10	0.0	0.0	0	0.0	3	5	-	-	-	0.00	1
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	36	5	31	35	5	30	47,588	0.0	0.0	662	6.8	1,103	1,322	0.000	0.003	132	0.22	36
Lighting	31	31		121	121		847	0.2	0.4	1,830	-	-	27	0.006	0.011	59	-	-
Refrigerator/Freezer[3]	4	4		4	4		2,925	0.2	0.2	1,966	-	-	731	0.060	0.057	491	-	-
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Refrigerator Exchange	4	4		4	4		2,925	0.2	0.2	1,966	-	-	731	0.060	0.057	491	-	-
Freezer Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Freezer Exchange	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-

Total Non-Efficiency Measures	65					**53,036**							**816**					
Misc Ins,Attic Access/Vent	39					4,280							110					
Duct Sealing	0					0							0					
Duct Insulation	0					0							0					
Damming Material	0					0							0					
Htg. Sys. Tune & Clean	11					597							54					
Htg. Sys./WH Other	0					0							0					
Air Conditioning Work	0					0							0					
Water Heater Repair	0					0							0					
Refrigerator Coil Clean	0					0							0					
Waterbed Mattress Pad	0					0							0					
Programmable Tstat	10					970							97					
Unspecified Utility Meas.	0					0							0					
CO Detector	0					0							0					
Smoke Detector	0					0							0					
Fuses	0					0							0					
Htg Sys Safety Check	0					0							0					
Htg Sys Ventilation	33					5,898							179					
Water Heater Ventilation	35					4,616							132					
Bathroom Ventilation	0					0							0					
Dryer Ventilation	0					0							0					
Kitchen Ventilation	0					0							0					
Other Exhaust Ventilation	0					0							0					
Asbestos Removal (Minor)	0					0							0					
Health/Safety Repairs	20					849							42					
Health/Safety Other	0					0							0					
Consumables	0					0							0					
General Repairs	53					9,486							179					
Meter Refrig (no action)	50					0							0					
Meter Freezer (no action)	0					0							0					
Support	52					26,340							507					
Transportation Allowance	0					0							0					
Landlord Contr Misc	0					0							0					
Landlord Contr Furnace	0					0							0					
Landlord Contr DHW	0					0							0					
Client Contr (Any)	0					0							0					
Lead Safe Work	0					0							0					
Unspecifed/Other	0					0							0					

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

IMPACT

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $199,130

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $199,130

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Number of Dwellings with Electricity Impacts: Season: Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms
Total Efficiency Measures	**29**	**23**	**27**	**23**	**23**	**160,214**	**4.1**		**1.7**		**10,452**	**56**	**5,545**	**5,525**	**0.180**		**0.075**		**454**	**2.09**	**205**
Total Shell & Htg. Sys. Repl	29	23	27	23	23	127,457	3.7	4,465	1.0	1,600	6,065	53	4,924	4,395	0.161	194	0.045	70	264	1.96	182
Total Shell Measures	29	23	27	23	23	77,334	3.7	4,465	1.0	1,600	6,065	31	2,845	2,667	0.161	194	0.045	70	264	1.13	105
Wall Insul.	9	6	9	6	0	20,496	0.7	890	0.0	0	890	8	730	2,277	0.123	148	0.000	0	148	0.87	81
Open Blown Ceiling Insul.	28	22	25	22	0	23,015	1.5	1,841	0.0	0	1,841	7	676	822	0.069	84	0.000	0	84	0.29	27
Cavity Fill Insul.	6	4	6	4	0	6,222	0.3	329	0.0	0	329	4	375	1,037	0.068	82	0.000	0	82	0.67	63
Sloped Attic Insul.	12	9	11	9	0	5,427	0.5	625	0.0	0	625	5	478	452	0.058	69	0.000	0	69	0.47	43
Kneewall Insul.	13	8	12	8	0	4,123	0.3	357	0.0	0	357	2	232	317	0.037	45	0.000	0	45	0.21	19
Infil. Reduction	28	20	25	20	0	12,151	0.1	173	0.0	0	173	2	219	434	0.007	9	0.000	0	9	0.09	9
Found./Crawl. Insul.	12	4	11	4	0	4,275	0.2	251	0.0	0	251	1	95	356	0.052	63	0.000	0	63	0.09	9
Bandjoist Insul.	13	0	13	-	0	1,625	0.0	0	0.0	0	0	1	47	125	-	-	-	-	-	0.04	4
Furnace Blower Fan[1]	29	23	27	-	23	0	0.0	0	1.0	1,600	1,600	(0)	(8)	0	0.000	0	0.045	70	70	(0.00)	(0)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	20	0	20	-	0	50,123	0.0	0	0.0	0	0	22	2,079	2,506	-	-	-	-	-	1.12	104
Condensing Htg Sys Repl	20	0	20	-	-	50,123	0.0	0	0.0	0	0	22	2,079	2,506	-	-	-	-	-	1.12	104
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Heat Pump Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
	Total	**Electric**	**Gas**	**Number of Measures by Fuel Type: Total**	**Electric**	**Gas**		**Summer kW**		**Winter kW**	**Annual kWh**	**Pk-Day therms**	**Annual therms**		**Summer kW**		**Winter kW**		**Annual kWh**	**Pk-Day therms**	**Annual therms**
Water Heating	25	1	24	40	3	38	29,872	0.0		0.0	341	3.6	621	1,195	0.000		0.007		341	0.150	26
Temp. Reduct.	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
Pipe Insul.	23	1	22	23	1	22	230	0.0		0.0	43	0.2	63	10	0.000		0.000		43	0.01	3
LF Showerhead	1	1	0	1	1	0	10	0.0		0.0	175	0.0	0	10	0.000		0.004		175	-	-
Faucet Aerator	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
Hi-Eff or Electric Wtr Htr Repl.	20	1	19	16	1	16	29,632	0.0		0.0	124	3.4	558	1,482	0.000		0.003		124	0.18	29
Lighting	21	21		191	191		1,377	0.3		0.6	3,022	-	-	66	0.015		0.028		144	-	-
Refrigerator/Freezer[3]	2	2		2	2		1,508	0.1		0.1	1,023	-	-	754	0.063		0.059		512	-	-
Refrigerator Removal	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Refrigerator Exchange	2	2		2	2		1,508	0.1		0.1	1,023	-	-	754	0.063		0.059		512	-	-
Freezer Removal	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Freezer Exchange	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Total Non-Efficiency Measures	29					**38,917**								**1,342**							
Misc Ins,Attic Access/Vent	14					2,208								158							
Duct Sealing	0					0								0							
Duct Insulation	0					0								0							
Damming Material	0					0								0							
Htg. Sys. Tune & Clean	3					375								125							
Htg. Sys./WH Other	0					0								0							
Air Conditioning Work	0					0								0							
Water Heater Repair	0					0								0							
Refrigerator Coil Clean	0					0								0							
Waterbed Mattress Pad	0					0								0							
Programmable Tstat	0					0								0							
Unspecified Utility Meas.	0					0								0							
CO Detector	0					0								0							
Smoke Detector	0					0								0							
Fuses	0					0								0							
Htg Sys Safety Check	0					0								0							
Htg Sys Ventilation	20					4,143								207							
Water Heater Ventilation	18					3,296								183							
Bathroom Ventilation	0					0								0							
Dryer Ventilation	0					0								0							
Kitchen Ventilation	0					0								0							
Other Exhaust Ventilation	0					0								0							
Asbestos Removal (Minor)	0					0								0							
Health/Safety Repairs	20					29,632								1,482							
Health/Safety Other	0					0								0							
Consumables	0					0								0							
General Repairs	26					9,147								352							
Meter Refrig (no action)	9					0								0							
Meter Freezer (no action)	1					0								0							
Support	28					19,748								705							
Transportation Allowance	0					0								0							
Landlord Contr Misc	0					0								0							
Landlord Contr Furnace	0					0								0							
Landlord Contr DHW	0					0								0							
Client Contr (Any)	0					0								0							
Lead Safe Work	0					0								0							
Unspecifed/Other	0					0								0							

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

South Central Iowa Community Action Program

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $120,050
Utility Administration Expenditures: -
Total Labor and Material Expenditures: $120,050

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Number of Dwellings with Electricity Impacts: Season: Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms
Total Efficiency Measures	**22**	**18**	**15**	**18**	**18**	**97,230**	**3.9**		**6.0**		**17,432**	**31**	**2,785**	**4,420**	**0.218**		**0.332**		**968**	**2.04**	**186**
Total Shell & Htg. Sys. Repl	22	18	15	18	18	83,107	3.5	4,206	5.4	7,960	12,167	30	2,615	3,778	0.194	234	0.300	442	676	1.98	174
Total Shell Measures	22	18	15	18	17	41,312	3.5	4,206	5.3	7,883	12,090	17	1,476	1,878	0.194	234	0.314	464	672	1.12	98
Wall Insul.	8	5	6	5	1	12,191	0.8	956	0.1	124	1,080	8	666	1,524	0.158	191	0.084	124	216	1.26	111
Open Blown Ceiling Insul.	17	14	10	14	4	14,024	2.1	2,578	2.8	4,162	6,740	4	380	825	0.153	184	0.706	1,040	481	0.43	38
Cavity Fill Insul.	2	2	1	2	1	390	0.0	38	0.1	140	178	0	8	195	0.016	19	0.095	140	89	0.10	8
Sloped Attic Insul.	5	2	4	2	1	2,936	0.1	111	0.6	860	971	2	183	587	0.046	55	0.583	860	485	0.52	46
Kneewall Insul.	1	0	1	0	0	138	0.0	0	0.0	0	0	0	0	138	-	-	-	-	-	0.00	0
Infil. Reduction	22	18	15	18	4	8,060	0.2	245	0.8	1,182	1,428	2	144	366	0.011	14	0.200	296	79	0.11	10
Found./Crawl. Insul.	8	3	5	3	1	2,808	0.2	279	0.3	386	664	0	40	351	0.077	93	0.262	386	221	0.09	8
Bandjoist Insul.	6	1	5	-	1	767	0.0	0	0.1	106	106	1	59	128	0.000	0	0.072	106	106	0.13	12
Furnace Blower Fan[1]	17	13	15	-	13	0	0.0	0	0.6	923	923	(0)	(5)	0	0.000	0	0.048	71	71	(0.00)	(0)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	13	2	11	-	2	41,795	0.0	0	0.1	77	77	13	1,140	3,215	0.000	0	0.026	39	39	1.18	104
Condensing Htg Sys Repl	11	0	11	-	-	34,795	0.0	0	0.0	0	0	13	1,140	3,163	-	-	-	-	-	1.18	104
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Heat Pump Repl	2	2	0	-	2	7,000	0.0	0	0.1	77	77	0	0	3,500	0.000	0	0.026	39	39	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-

	Number of Measures: Total	Electric	Gas	Number of Measures by Fuel Type: Total	Electric	Gas		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms
Water Heating	16	7	9	30	16	15	11,689	0.0	0.0	1,547	0.9	170	731	0.000	0.004	221	0.104	19
Temp. Reduct.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Pipe Insul.	11	5	6	11	5	6	105	0.0	0.0	246	0.0	17	10	0.000	0.000	49	0.01	3
LF Showerhead	7	5	2	7	5	2	53	0.0	0.0	1,004	0.0	14	8	0.000	0.005	201	0.02	7
Faucet Aerator	6	5	1	7	5	2	31	0.0	0.0	189	0.0	3	5	0.000	0.001	38	0.01	3
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	8	1	7	5	1	5	11,500	0.0	0.0	108	0.8	136	1,438	0.000	0.003	108	0.12	19
Lighting	13	13		103	103		309	0.2	0.3	1,558	-	-	24	0.013	0.023	120	-	-
Refrigerator/Freezer[3]	3	3		4	4		2,125	0.3	0.2	2,161	-	-	708	0.089	0.083	720	-	-
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Refrigerator Exchange	2	2		2	2		1,475	0.2	0.1	1,276	-	-	738	0.078	0.073	638	-	-
Freezer Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Freezer Exchange	1	1		2	2		650	0.1	0.1	885	-	-	650	0.109	0.102	885	-	-

Total Non-Efficiency Measures	22	**22,820**	**1,037**
Misc Ins,Attic Access/Vent	5	519	104
Duct Sealing	1	320	320
Duct Insulation	6	329	55
Damming Material	0	0	0
Htg. Sys. Tune & Clean	7	875	125
Htg. Sys./WH Other	0	0	0
Air Conditioning Work	0	0	0
Water Heater Repair	0	0	0
Refrigerator Coil Clean	0	0	0
Waterbed Mattress Pad	0	0	0
Programmable Tstat	0	0	0
Unspecified Utility Meas.	0	0	0
CO Detector	0	0	0
Smoke Detector	0	0	0
Fuses	0	0	0
Htg Sys Safety Check	0	0	0
Htg Sys Ventilation	10	2,500	250
Water Heater Ventilation	7	1,450	207
Bathroom Ventilation	0	0	0
Dryer Ventilation	0	0	0
Kitchen Ventilation	0	0	0
Other Exhaust Ventilation	0	0	0
Asbestos Removal (Minor)	0	0	0
Health/Safety Repairs	3	136	45
Health/Safety Other	0	0	0
Consumables	0	0	0
General Repairs	21	6,009	286
Meter Refrig (no action)	14	0	0
Meter Freezer (no action)	8	0	0
Support	19	10,682	562
Transportation Allowance	0	0	0
Landlord Contr Misc	0	0	0
Landlord Contr Furnace	0	0	0
Landlord Contr DHW	0	0	0
Client Contr (Any)	0	0	0
Lead Safe Work	0	0	0
Unspecifed/Other	0	0	0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Community Action of South Eastern Iowa

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $351,375
Utility Administration Expenditures: -
Total Labor and Material Expenditures: $351,375

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Number of Dwellings with Electricity Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Gas Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Gas Annual therms
Total Efficiency Measures	**55**	**53**	**43**	**52**	**53**	**311,956**	**18.6**		**4.5**		**34,967**	**143**	**12,622**	**5,672**	**0.357**		**0.085**		**660**	**3.33**	**294**
Total Shell & Htg. Sys. Repl	55	53	43	52	53	260,634	17.5	21,106	2.9	4,059	25,165	136	11,440	4,739	0.337	406	0.054	77	475	3.16	266
Total Shell Measures	55	53	43	52	53	167,201	17.5	21,106	2.9	4,059	25,165	88	7,439	3,040	0.337	406	0.054	77	475	2.05	173
Wall Insul.	44	42	35	42	0	65,751	7.5	9,055	0.0	0	9,055	36	3,042	1,494	0.179	216	0.000	0	216	1.03	87
Open Blown Ceiling Insul.	49	48	38	48	0	37,574	5.9	7,132	0.0	0	7,132	28	2,336	767	0.123	149	0.000	0	149	0.73	61
Cavity Fill Insul.	17	14	16	14	0	14,245	1.1	1,283	0.0	0	1,283	8	648	838	0.076	92	0.000	0	92	0.48	41
Sloped Attic Insul.	22	22	19	22	0	9,523	1.2	1,395	0.0	0	1,395	7	568	433	0.053	63	0.000	0	63	0.36	30
Kneewall Insul.	18	18	16	18	0	8,175	0.4	473	0.0	0	473	2	196	454	0.022	26	0.000	0	26	0.15	12
Infil. Reduction	46	45	33	45	0	16,410	0.4	444	0.0	0	444	2	193	357	0.008	10	0.000	0	10	0.07	6
Found./Crawl. Insul.	30	14	27	14	0	14,976	1.1	1,323	0.0	0	1,323	5	452	499	0.078	95	0.000	0	95	0.20	17
Bandjoist Insul.	3	0	3	-	0	548	0.0	0	0.0	0	0	0	18	183	-	-	-	-	-	0.07	6
Furnace Blower Fan[1]	55	53	43	-	53	0	0.0	0	2.9	4,059	4,059	(0)	(14)	0	0.000	0	0.054	77	77	(0.00)	(0)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	34	0	34	-	0	93,433	0.0	0	0.0	0	0	48	4,001	2,748	-	-	-	-	-	1.40	118
Condensing Htg Sys Repl	34	0	34	-	-	93,433	0.0	0	0.0	0	0	48	4,001	2,748	-	-	-	-	-	1.40	118
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Heat Pump Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-

Measure	Number of Measures by Fuel Type: Total	Electric	Gas				Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms
Water Heating	36	1	35	37	1	36	47,023	0.0	0.0	43	7.2	1,182	1,306	0.000	0.000	43	0.206	34
Temp. Reduct.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Pipe Insul.	5	1	4	5	1	4	43	0.0	0.0	43	0.0	11	9	0.000	0.000	43	0.01	3
LF Showerhead	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Faucet Aerator	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	34	0	34	32	0	32	46,980	0.0	0.0	0	7.2	1,171	1,382	-	-	-	0.21	34
Lighting	28	28		308	308		659	0.7	1.3	6,670	-	-	24	0.025	0.046	238	-	-
Refrigerator/Freezer[3]	6	6		6	6		3,640	0.4	0.4	3,090	-	-	607	0.063	0.059	515	-	-
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Refrigerator Exchange	5	5		5	5		3,415	0.3	0.3	2,545	-	-	683	0.063	0.059	509	-	-
Freezer Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Freezer Exchange	1	1		1	1		225	0.1	0.1	545	-	-	225	0.067	0.063	545	-	-

Measure	Total	Spending on Materials & Labor ($)	Spending on Materials & Labor ($)
Total Non-Efficiency Measures	55	**39,418**	**717**
Misc Ins,Attic Access/Vent	1	16	16
Duct Sealing	0	0	0
Duct Insulation	0	0	0
Damming Material	0	0	0
Htg. Sys. Tune & Clean	7	975	139
Htg. Sys./WH Other	0	0	0
Air Conditioning Work	0	0	0
Water Heater Repair	0	0	0
Refrigerator Coil Clean	0	0	0
Waterbed Mattress Pad	0	0	0
Programmable Tstat	0	0	0
Unspecified Utility Meas.	0	0	0
CO Detector	0	0	0
Smoke Detector	0	0	0
Fuses	0	0	0
Htg Sys Safety Check	0	0	0
Htg Sys Ventilation	26	4,293	165
Water Heater Ventilation	21	3,145	150
Bathroom Ventilation	0	0	0
Dryer Ventilation	0	0	0
Kitchen Ventilation	0	0	0
Other Exhaust Ventilation	0	0	0
Asbestos Removal (Minor)	0	0	0
Health/Safety Repairs	1	63	63
Health/Safety Other	0	0	0
Consumables	0	0	0
General Repairs	5	1,532	306
Meter Refrig (no action)	0	0	0
Meter Freezer (no action)	0	0	0
Support	54	29,396	544
Transportation Allowance	0	0	0
Landlord Contr Misc	0	0	0
Landlord Contr Furnace	0	0	0
Landlord Contr DHW	0	0	0
Client Contr (Any)	0	0	0
Lead Safe Work	0	0	0
Unspecifed/Other	0	0	0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Southern Iowa Economic Development Authority

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $241,136

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $241,136

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Number of Dwellings with Electricity Impacts: Season: Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms
Total Efficiency Measures	**67**	**67**	**32**	**67**	**67**	**186,274**	**15.4**		**17.4**		**56,863**	**63**	**5,731**	**2,780**	**0.230**		**0.260**		**849**	**1.96**	**179**
Total Shell & Htg. Sys. Repl	65	65	31	63	64	147,705	13.6	16,433	14.3	21,032	37,465	60	5,283	2,272	0.216	261	0.223	329	576	1.94	170
Total Shell Measures	65	65	31	63	64	86,547	13.6	16,433	14.0	20,658	37,091	35	3,050	1,331	0.216	261	0.219	323	571	1.12	98
Wall Insul.	31	31	16	31	3	21,430	4.9	5,884	3.6	5,242	11,126	9	808	691	0.157	190	1.185	1,747	359	0.57	50
Open Blown Ceiling Insul.	45	45	23	44	5	32,013	6.1	7,310	5.7	8,368	15,678	17	1,535	711	0.138	166	1.135	1,674	348	0.76	67
Cavity Fill Insul.	6	5	2	5	0	2,015	0.2	276	0.0	0	276	1	72	336	0.046	55	0.000	0	55	0.41	36
Sloped Attic Insul.	8	8	4	8	0	1,882	0.4	486	0.0	0	486	1	122	235	0.050	61	0.000	0	61	0.35	31
Kneewall Insul.	4	4	3	4	0	931	0.2	183	0.0	0	183	1	65	233	0.038	46	0.000	0	46	0.25	22
Infil. Reduction	61	58	29	57	7	15,722	0.6	739	0.5	780	1,519	2	188	258	0.011	13	0.076	111	26	0.07	6
Found./Crawl. Insul.	34	22	23	19	4	8,402	1.3	1,554	1.8	2,669	4,223	2	140	247	0.068	82	0.452	667	192	0.07	6
Bandjoist Insul.	23	3	20	-	3	4,153	0.0	0	0.3	500	500	1	130	181	0.000	0	0.113	167	167	0.07	6
Furnace Blower Fan[1]	57	57	31	-	57	0	0.0	0	2.1	3,099	3,099	(0)	(9)	0	0.000	0	0.037	54	54	(0.00)	(0)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	24	2	22	-	2	61,159	0.0	0	0.3	374	374	25	2,234	2,548	0.000	0	0.127	187	187	1.15	102
Condensing Htg Sys Repl	22	0	22	-	-	56,159	0.0	0	0.0	0	0	25	2,234	2,553	-	-	-	-	-	1.15	102
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	2	2	0	-	2	5,000	0.0	0	0.3	374	374	0	0	2,500	0.000	0	0.127	187	187	-	-
Heat Pump Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-

	Number of Measures by Fuel Type: Total	Electric	Gas		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms
Water Heating	55	34	21	76	42	34	33,563	0.0	0.0	2,529	2.5	448	610	0.000	0.001	74	0.121	21
Temp. Reduct.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Pipe Insul.	55	34	21	55	34	21	477	0.0	0.0	1,541	0.2	60	9	0.000	0.000	45	0.01	3
LF Showerhead	1	0	1	1	0	1	6	0.0	0.0	0	0.0	7	6	-	-	-	0.02	7
Faucet Aerator	1	1	0	1	1	0	5	0.0	0.0	33	0.0	0	5	0.000	0.001	33	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	25	9	16	19	7	12	33,075	0.0	0.0	955	2.3	381	1,323	0.000	0.003	106	0.15	24
Lighting	35	35		359	359		2,084	1.6	2.9	14,778	-	-	60	0.044	0.082	422	-	-
Refrigerator/Freezer[3]	4	4		4	4		2,922	0.3	0.2	2,091	-	-	731	0.064	0.060	523	-	-
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Refrigerator Exchange	3	3		3	3		2,428	0.2	0.2	1,546	-	-	809	0.063	0.059	515	-	-
Freezer Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-
Freezer Exchange	1	1		1	1		494	0.1	0.1	545	-	-	494	0.067	0.063	545	-	-

Total Non-Efficiency Measures	68	**54,862**	**807**
Misc Ins,Attic Access/Vent	21	2,446	116
Duct Sealing	0	0	0
Duct Insulation	1	58	58
Damming Material	0	0	0
Htg. Sys. Tune & Clean	6	750	125
Htg. Sys./WH Other	0	0	0
Air Conditioning Work	0	0	0
Water Heater Repair	0	0	0
Refrigerator Coil Clean	0	0	0
Waterbed Mattress Pad	0	0	0
Programmable Tstat	0	0	0
Unspecified Utility Meas.	0	0	0
CO Detector	0	0	0
Smoke Detector	0	0	0
Fuses	0	0	0
Htg Sys Safety Check	0	0	0
Htg Sys Ventilation	16	2,673	167
Water Heater Ventilation	16	2,263	141
Bathroom Ventilation	0	0	0
Dryer Ventilation	0	0	0
Kitchen Ventilation	0	0	0
Other Exhaust Ventilation	0	0	0
Asbestos Removal (Minor)	0	0	0
Health/Safety Repairs	14	1,205	86
Health/Safety Other	0	0	0
Consumables	0	0	0
General Repairs	55	15,483	282
Meter Refrig (no action)	0	0	0
Meter Freezer (no action)	0	0	0
Support	63	29,985	476
Transportation Allowance	0	0	0
Landlord Contr Misc	0	0	0
Landlord Contr Furnace	0	0	0
Landlord Contr DHW	0	0	0
Client Contr (Any)	0	0	0
Lead Safe Work	0	0	0
Unspecifed/Other	0	0	0

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Upper Des Moines Opportunity

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $322,782

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $322,782

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Number of Dwellings with Electricity Impacts: Season: Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms
Total Efficiency Measures	**60**	**41**	**52**	**41**	**41**	**270,124**	**9.2**		**8.4**		**33,795**	**89**	**9,206**	**4,502**	**0.224**		**0.204**		**824**	**1.71**	**177**
Total Shell & Htg. Sys. Repl	59	41	51	40	41	207,759	7.6	9,210	6.0	9,744	18,955	82	7,946	3,521	0.191	230	0.146	238	462	1.60	156
Total Shell Measures	59	41	51	40	41	128,846	7.6	9,210	6.0	9,744	18,955	49	4,727	2,184	0.191	230	0.146	238	462	0.95	93
Wall Insul.	34	24	31	24	0	53,113	2.9	3,444	0.0	0	3,444	23	2,220	1,562	0.119	144	0.000	0	144	0.74	72
Open Blown Ceiling Insul.	47	35	42	35	1	26,967	3.0	3,670	3.6	5,858	9,528	6	562	574	0.087	105	3.591	5,858	272	0.14	13
Cavity Fill Insul.	14	8	13	8	0	8,063	0.4	515	0.0	0	515	6	550	576	0.053	64	0.000	0	64	0.43	42
Sloped Attic Insul.	13	9	11	9	0	7,211	0.6	750	0.0	0	750	5	510	555	0.069	83	0.000	0	83	0.48	46
Kneewall Insul.	7	4	5	4	0	1,248	0.1	67	0.0	0	67	1	60	178	0.014	17	0.000	0	17	0.12	12
Infil. Reduction	53	31	47	31	1	13,398	0.4	443	0.2	306	749	5	439	253	0.012	14	0.188	306	24	0.10	9
Found./Crawl. Insul.	22	5	18	5	1	11,348	0.3	322	0.1	161	483	2	225	516	0.053	64	0.099	161	97	0.13	13
Bandjoist Insul.	29	1	28	-	1	7,499	0.0	0	0.0	61	61	2	178	259	0.000	0	0.038	61	61	0.07	6
Furnace Blower Fan[1]	58	40	51	-	40	0	0.0	0	2.1	3,358	3,358	(0)	(18)	0	0.000	0	0.051	84	84	(0.00)	(0)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	33	0	33	-	0	78,913	0.0	0	0.0	0	0	33	3,219	2,391	-	-	-	-	-	1.00	98
Condensing Htg Sys Repl	33	0	33	-	-	78,913	0.0	0	0.0	0	0	33	3,219	2,391	-	-	-	-	-	1.00	98
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Heat Pump Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
	Number of Measures by Fuel Type: Total	**Electric**	**Gas**																		
Water Heating	50	9	41	89	12	77	53,025	0.0		0.0	768	7.3	1,260	1,061	0.000		0.001		85	0.179	31
Temp. Reduct.	2	1	1	2	1	1	0	0.0		0.0	115	0.0	7	0	0.000		0.000		115	0.02	7
WH Wrap	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
Pipe Insul.	49	9	40	49	9	40	980	0.0		0.0	396	0.3	114	20	0.000		0.000		44	0.01	3
LF Showerhead	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
Faucet Aerator	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
Hi-Eff or Electric Wtr Htr Repl.	40	2	38	38	2	36	52,045	0.0		0.0	257	7.0	1,139	1,301	0.000		0.003		128	0.18	30
Lighting	37	37		295	295		2,065	1.0		1.9	9,926	-	-	56	0.028		0.052		268	-	-
Refrigerator/Freezer[3]	9	9		8	8		7,274	0.5		0.5	4,147	-	-	808	0.057		0.053		461	-	-
Refrigerator Removal	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Refrigerator Exchange	9	9		8	8		7,274	0.5		0.5	4,147	-	-	808	0.057		0.053		461	-	-
Freezer Removal	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Freezer Exchange	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Total Non-Efficiency Measures	60					**52,659**								**878**							
Misc Ins,Attic Access/Vent	26					2,171								84							
Duct Sealing	0					0								0							
Duct Insulation	0					0								0							
Damming Material	0					0								0							
Htg. Sys. Tune & Clean	13					1,460								112							
Htg. Sys./WH Other	0					0								0							
Air Conditioning Work	0					0								0							
Water Heater Repair	0					0								0							
Refrigerator Coil Clean	0					0								0							
Waterbed Mattress Pad	0					0								0							
Programmable Tstat	0					0								0							
Unspecified Utility Meas.	0					0								0							
CO Detector	0					0								0							
Smoke Detector	0					0								0							
Fuses	0					0								0							
Htg Sys Safety Check	0					0								0							
Htg Sys Ventilation	27					4,068								151							
Water Heater Ventilation	37					5,167								140							
Bathroom Ventilation	0					0								0							
Dryer Ventilation	0					0								0							
Kitchen Ventilation	0					0								0							
Other Exhaust Ventilation	0					0								0							
Asbestos Removal (Minor)	0					0								0							
Health/Safety Repairs	8					790								99							
Health/Safety Other	0					0								0							
Consumables	0					0								0							
General Repairs	39					7,026								180							
Meter Refrig (no action)	0					0								0							
Meter Freezer (no action)	0					0								0							
Support	60					31,977								533							
Transportation Allowance	0					0								0							
Landlord Contr Misc	0					0								0							
Landlord Contr Furnace	0					0								0							
Landlord Contr DHW	0					0								0							
Client Contr (Any)	0					0								0							
Lead Safe Work	0					0								0							
Unspecifed/Other	0					0								0							

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

West Central Development Corporation

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $279,302

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $279,302

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Number of Dwellings with Electricity Impacts: Season: Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms
Total Efficiency Measures	**42**	**39**	**35**	**39**	**39**	**223,417**	**11.6**		**11.6**		**35,587**	**67**	**6,288**	**5,319**	**0.298**		**0.296**		**912**	**1.92**	**180**
Total Shell & Htg. Sys. Repl	41	36	35	35	36	179,637	11.1	13,394	10.6	15,308	28,702	62	5,340	4,381	0.317	383	0.294	425	797	1.77	153
Total Shell Measures	41	36	35	35	36	96,133	11.1	13,394	10.5	15,228	28,622	27	2,296	2,345	0.317	383	0.293	423	795	0.76	66
Wall Insul.	27	24	22	24	3	43,500	4.6	5,515	2.8	4,089	9,604	14	1,178	1,611	0.191	230	0.944	1,363	400	0.62	54
Open Blown Ceiling Insul.	35	32	29	32	3	25,868	4.6	5,563	5.0	7,176	12,738	6	478	739	0.144	174	1.656	2,392	398	0.19	16
Cavity Fill Insul.	1	1	1	1	0	1,835	0.1	180	0.0	0	180	1	58	1,835	0.150	180	0.000	0	180	0.68	58
Sloped Attic Insul.	11	11	9	11	1	2,857	1.1	1,375	1.2	1,786	3,162	2	152	260	0.104	125	1.237	1,786	287	0.20	17
Kneewall Insul.	4	2	3	2	0	1,788	0.0	30	0.0	0	30	1	43	447	0.012	15	0.000	0	15	0.17	14
Infil. Reduction	41	20	35	20	3	12,783	0.3	419	0.3	428	848	3	251	312	0.017	21	0.099	143	42	0.08	7
Found./Crawl. Insul.	13	6	11	4	2	5,931	0.3	312	0.1	153	465	1	74	456	0.065	78	0.053	77	77	0.08	7
Bandjoist Insul.	12	3	9	-	3	1,570	0.0	0	0.3	385	385	1	68	131	0.000	0	0.089	128	128	0.09	8
Furnace Blower Fan[1]	38	33	35	-	33	0	0.0	0	0.8	1,211	1,211	(0)	(7)	0	0.000	0	0.025	37	37	(0.00)	(0)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	26	1	25	-	1	83,504	0.0	0	0.1	81	81	35	3,044	3,212	0.000	0	0.056	81	81	1.41	122
Condensing Htg Sys Repl	25	0	25	-	-	80,004	0.0	0	0.0	0	0	35	3,044	3,200	-	-	-	-	-	1.41	122
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	1	1	0	-	1	3,500	0.0	0	0.1	81	81	0	0	3,500	0.000	0	0.056	81	81	-	-
Heat Pump Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
	Total	**Electric**	**Gas**	**Number of Measures by Fuel Type: Total**	**Electric**	**Gas**		**Summer kW**		**Winter kW**	**Annual kWh**	**Pk-Day therms**	**Annual therms**		**Summer kW**		**Winter kW**		**Annual kWh**	**Pk-Day therms**	**Annual therms**
Water Heating	37	8	29	118	25	93	40,761	0.0		0.0	1,974	5.1	949	1,102	0.000		0.005		247	0.177	33
Temp. Reduct.	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
Pipe Insul.	37	8	29	37	8	29	730	0.0		0.0	374	0.2	84	20	0.000		0.000		47	0.01	3
LF Showerhead	18	3	15	18	3	15	180	0.0		0.0	611	0.3	104	10	0.000		0.005		204	0.02	7
Faucet Aerator	26	6	20	38	9	29	190	0.0		0.0	320	0.1	39	7	0.000		0.001		53	0.01	2
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
Hi-Eff or Electric Wtr Htr Repl.	29	6	23	25	5	20	39,661	0.0		0.0	669	4.4	721	1,368	0.000		0.003		111	0.19	31
Lighting	32	32		300	300		2,169	0.5		0.9	4,438	-	-	68	0.015		0.027		139	-	-
Refrigerator/Freezer[3]	1	1		1	1		850	0.1		0.1	473	-	-	850	0.058		0.054		473	-	-
Refrigerator Removal	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Refrigerator Exchange	1	1		1	1		850	0.1		0.1	473	-	-	850	0.058		0.054		473	-	-
Freezer Removal	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Freezer Exchange	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Total Non-Efficiency Measures	42					**55,884**								**1,331**							
Misc Ins,Attic Access/Vent	29					4,802								166							
Duct Sealing	0					0								0							
Duct Insulation	9					1,547								172							
Damming Material	0					0								0							
Htg. Sys. Tune & Clean	10					1,250								125							
Htg. Sys./WH Other	0					0								0							
Air Conditioning Work	0					0								0							
Water Heater Repair	0					0								0							
Refrigerator Coil Clean	0					0								0							
Waterbed Mattress Pad	0					0								0							
Programmable Tstat	0					0								0							
Unspecified Utility Meas.	0					0								0							
CO Detector	0					0								0							
Smoke Detector	0					0								0							
Fuses	0					0								0							
Htg Sys Safety Check	0					0								0							
Htg Sys Ventilation	25					5,775								231							
Water Heater Ventilation	20					3,554								178							
Bathroom Ventilation	0					0								0							
Dryer Ventilation	0					0								0							
Kitchen Ventilation	0					0								0							
Other Exhaust Ventilation	0					0								0							
Asbestos Removal (Minor)	0					0								0							
Health/Safety Repairs	11					705								64							
Health/Safety Other	0					0								0							
Consumables	0					0								0							
General Repairs	41					12,608								308							
Meter Refrig (no action)	0					0								0							
Meter Freezer (no action)	0					0								0							
Support	36					25,643								712							
Transportation Allowance	0					0								0							
Landlord Contr Misc	0					0								0							
Landlord Contr Furnace	0					0								0							
Landlord Contr DHW	0					0								0							
Client Contr (Any)	0					0								0							
Lead Safe Work	0					0								0							
Unspecifed/Other	0					0								0							

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Community Action Agency of Siouxland

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $150,112

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $150,112

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Number of Dwellings with Electricity Impacts: Season: Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity: Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas: Pk-Day therms	Annual therms
Total Efficiency Measures	**40**	**37**	**24**	**37**	**37**	**134,962**	**8.5**		**15.3**		**52,966**	**39**	**3,779**	**3,374**	**0.230**		**0.413**		**1,432**	**1.64**	**157**
Total Shell & Htg. Sys. Repl	37	34	23	29	34	104,384	5.6	6,702	11.0	16,773	23,475	38	3,447	2,821	0.192	231	0.323	493	690	1.64	150
Total Shell Measures	37	34	23	29	34	69,214	5.6	6,702	11.0	16,773	23,475	23	2,063	1,871	0.192	231	0.323	493	690	0.98	90
Wall Insul.	15	12	10	12	2	14,171	1.4	1,744	0.8	1,196	2,940	7	608	945	0.120	145	0.391	598	245	0.67	61
Open Blown Ceiling Insul.	28	26	15	26	8	28,963	3.1	3,707	7.4	11,330	15,037	7	595	1,034	0.118	143	0.926	1,416	578	0.43	40
Cavity Fill Insul.	4	3	4	3	0	3,758	0.2	256	0.0	0	256	3	258	940	0.071	85	0.000	0	85	0.71	65
Sloped Attic Insul.	5	4	5	4	0	2,820	0.3	371	0.0	0	371	3	249	564	0.077	93	0.000	0	93	0.55	50
Kneewall Insul.	3	2	2	2	0	1,140	0.1	165	0.0	0	165	1	81	380	0.068	82	0.000	0	82	0.44	40
Infil. Reduction	1	1	0	1	0	665	0.0	24	0.0	0	24	0	0	665	0.020	24	0.000	0	24	-	-
Found./Crawl. Insul.	11	7	6	5	5	11,766	0.4	437	0.9	1,432	1,868	1	130	1,070	0.072	87	0.187	286	267	0.24	22
Bandjoist Insul.	15	5	10	-	5	5,931	0.0	0	0.9	1,375	1,375	2	148	395	0.000	0	0.180	275	275	0.16	15
Furnace Blower Fan[1]	28	25	23	-	25	0	0.0	0	0.9	1,440	1,440	(0)	(6)	0	0.000	0	0.038	58	58	(0.00)	(0)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	12	0	12	-	0	35,170	0.0	0	0.0	0	0	15	1,384	2,931	-	-	-	-	-	1.26	115
Condensing Htg Sys Repl	12	0	12	-	-	35,170	0.0	0	0.0	0	0	15	1,384	2,931	-	-	-	-	-	1.26	115
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Heat Pump Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
	Number of Measures: Total	Electric	Gas	Number of Measures by Fuel Type: Total	Electric	Gas		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms			
Water Heating	35	16	19	74	33	42	16,448	0.0	0.1	3,300	1.6	332	470	0.000	0.004	206	0.085	17			
Temp. Reduct.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-			
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-			
Pipe Insul.	33	15	18	33	15	18	640	0.0	0.0	748	0.2	53	19	0.000	0.000	50	0.01	3			
LF Showerhead	22	10	12	31	14	17	303	0.0	0.0	2,009	0.3	85	14	0.000	0.005	201	0.02	7			
Faucet Aerator	1	0	1	1	0	1	5	0.0	0.0	0	0.0	1	5	-	-	-	0.00	1			
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-			
Hi-Eff or Electric Wtr Htr Repl.	12	5	7	9	4	6	15,500	0.0	0.0	544	1.2	193	1,292	0.000	0.003	109	0.17	28			
Lighting	35	35		480	480		3,399	1.7	3.1	15,749	-	-	97	0.047	0.087	450	-	-			
Refrigerator/Freezer[3]	17	17		19	19		10,731	1.3	1.2	10,442	-	-	631	0.076	0.071	614	-	-			
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-			
Refrigerator Exchange	12	12		13	13		8,322	0.8	0.8	6,904	-	-	694	0.071	0.066	575	-	-			
Freezer Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-			
Freezer Exchange	6	6		6	6		2,409	0.4	0.4	3,538	-	-	402	0.073	0.068	590	-	-			
Total Non-Efficiency Measures	37					**15,150**							**409**								
Misc Ins,Attic Access/Vent	1					500							500								
Duct Sealing	0					0							0								
Duct Insulation	0					0							0								
Damming Material	0					0							0								
Htg. Sys. Tune & Clean	0					0							0								
Htg. Sys./WH Other	0					0							0								
Air Conditioning Work	0					0							0								
Water Heater Repair	0					0							0								
Refrigerator Coil Clean	0					0							0								
Waterbed Mattress Pad	0					0							0								
Programmable Tstat	1					100							100								
Unspecified Utility Meas.	0					0							0								
CO Detector	0					0							0								
Smoke Detector	0					0							0								
Fuses	0					0							0								
Htg Sys Safety Check	0					0							0								
Htg Sys Ventilation	6					940							157								
Water Heater Ventilation	4					660							165								
Bathroom Ventilation	0					0							0								
Dryer Ventilation	0					0							0								
Kitchen Ventilation	0					0							0								
Other Exhaust Ventilation	0					0							0								
Asbestos Removal (Minor)	0					0							0								
Health/Safety Repairs	12					15,500							1,292								
Health/Safety Other	0					0							0								
Consumables	0					0							0								
General Repairs	1					360							360								
Meter Refrig (no action)	19					0							0								
Meter Freezer (no action)	8					0							0								
Support	32					12,590							393								
Transportation Allowance	0					0							0								
Landlord Contr Misc	0					0							0								
Landlord Contr Furnace	0					0							0								
Landlord Contr DHW	0					0							0								
Client Contr (Any)	0					0							0								
Lead Safe Work	0					0							0								
Unspecifed/Other	0					0							0								

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

Des Moines County Community Action

Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2017

Total Reported Labor, Materials and Utility Admin Expenditures: $630,919

Utility Administration Expenditures: -

Total Labor and Material Expenditures: $630,919

Measure	Number of Dwellings with Impacts: Total	Electric	Gas	Number of Dwellings with Electricity Impacts: Season Cooling	Heating	Spending on Materials & Labor ($)	Billing Adjusted First-Year Savings: Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Gas Annual therms	Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures: Spending on Materials & Labor ($)	Electricity Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Gas Pk-Day therms	Gas Annual therms
Total Efficiency Measures	**103**	**103**	**91**	**97**	**103**	**527,948**	**22.5**		**22.7**		**79,324**	**224**	**21,161**	**5,126**	**0.232**		**0.220**		**770**	**2.47**	**233**
Total Shell & Htg. Sys. Repl	99	99	91	77	98	419,177	19.5	23,518	18.9	28,393	51,911	212	18,878	4,234	0.253	305	0.193	290	524	2.33	207
Total Shell Measures	99	99	91	77	98	319,470	19.5	23,518	18.9	28,393	51,911	149	13,295	3,227	0.253	305	0.193	290	524	1.64	146
Wall Insul.	63	52	60	52	1	126,592	8.2	9,876	0.4	527	10,403	44	3,912	2,009	0.157	190	0.359	527	200	0.74	65
Open Blown Ceiling Insul.	81	71	74	71	5	77,128	7.6	9,220	8.8	13,236	22,456	61	5,498	952	0.108	130	1.753	2,647	316	0.83	74
Cavity Fill Insul.	60	49	56	49	2	41,015	1.8	2,193	0.0	72	2,265	18	1,598	684	0.037	45	0.024	36	46	0.32	29
Sloped Attic Insul.	20	17	19	17	0	8,783	0.7	787	0.0	0	787	5	475	439	0.038	46	0.000	0	46	0.29	25
Kneewall Insul.	37	30	35	30	1	11,812	0.7	798	0.5	726	1,524	6	500	319	0.022	27	0.495	726	51	0.16	14
Infil. Reduction	1	1	1	1	0	15	0.0	1	0.0	0	1	0	0	15	0.001	1	0.000	0	1	0.00	0
Found./Crawl. Insul.	45	8	44	8	1	52,073	0.5	643	0.8	1,273	1,916	14	1,277	1,157	0.067	80	0.815	1,273	240	0.32	29
Bandjoist Insul.	11	1	10	-	1	2,053	0.0	0	0.2	250	250	1	83	187	0.000	0	0.170	250	250	0.09	8
Furnace Blower Fan[1]	92	92	91	-	92	0	0.0	0	8.3	12,308	12,308	(1)	(48)	0	0.000	0	0.090	134	134	(0.01)	(1)
Exhaust Ventilation[2]	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	52	0	52	-	0	99,707	0.0	0	0.0	0	0	63	5,583	1,917	-	-	-	-	-	1.21	107
Condensing Htg Sys Repl	52	0	52	-	-	99,707	0.0	0	0.0	0	0	63	5,583	1,917	-	-	-	-	-	1.21	107
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Heat Pump Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
	Number of Measures by Fuel Type: Total	Electric	Gas				Summer kW		Winter kW		Annual kWh	Pk-Day therms	Annual therms		Summer kW		Winter kW		Annual kWh	Pk-Day therms	Annual therms
	Total	Electric	Gas	Total	Electric	Gas															
Water Heating	86	11	75	284	29	256	88,388	0.0		0.0	1,773	12.5	2,283	1,028	0.000		0.002		161	0.166	30
Temp. Reduct.	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
WH Wrap	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
Pipe Insul.	84	10	74	84	10	74	1,415	0.0		0.0	481	0.6	212	17	0.000		0.000		48	0.01	3
LF Showerhead	21	2	19	25	3	22	230	0.0		0.0	393	0.5	140	11	0.000		0.002		197	0.02	7
Faucet Aerator	67	8	59	121	13	108	573	0.0		0.0	476	0.5	149	9	0.000		0.001		59	0.01	3
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0		0.0	0	0.0	0	0	-		-		-	-	-
Hi-Eff or Electric Wtr Htr Repl.	59	3	56	54	3	52	86,170	0.0		0.0	423	10.9	1,782	1,461	0.000		0.003		141	0.20	32
Lighting	70	70		655	655		4,515	1.1		2.0	10,432	-	-	65	0.016		0.029		149	-	-
Refrigerator/Freezer[3]	26	26		29	29		15,867	1.9		1.7	15,209	-	-	610	0.072		0.067		585	-	-
Refrigerator Removal	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Refrigerator Exchange	26	26		29	29		15,867	1.9		1.7	15,209	-	-	610	0.072		0.067		585	-	-
Freezer Removal	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Freezer Exchange	0	0		0	0		0	0.0		0.0	0	-	-	0	-		-		-	-	-
Total Non-Efficiency Measures	102					**102,972**								**1,010**							
Misc Ins,Attic Access/Vent	0					0								0							
Duct Sealing	0					0								0							
Duct Insulation	0					0								0							
Damming Material	0					0								0							
Htg. Sys. Tune & Clean	26					3,305								127							
Htg. Sys./WH Other	0					0								0							
Air Conditioning Work	0					0								0							
Water Heater Repair	0					0								0							
Refrigerator Coil Clean	0					0								0							
Waterbed Mattress Pad	0					0								0							
Programmable Tstat	0					0								0							
Unspecified Utility Meas.	0					0								0							
CO Detector	0					0								0							
Smoke Detector	1					80								80							
Fuses	0					0								0							
Htg Sys Safety Check	0					0								0							
Htg Sys Ventilation	50					8,657								173							
Water Heater Ventilation	52					8,845								170							
Bathroom Ventilation	0					0								0							
Dryer Ventilation	0					0								0							
Kitchen Ventilation	0					0								0							
Other Exhaust Ventilation	0					0								0							
Asbestos Removal (Minor)	0					0								0							
Health/Safety Repairs	59					86,170								1,461							
Health/Safety Other	0					0								0							
Consumables	0					0								0							
General Repairs	0					0								0							
Meter Refrig (no action)	0					0								0							
Meter Freezer (no action)	0					0								0							
Support	102					81,965								804							
Transportation Allowance	0					0								0							
Landlord Contr Misc	0					0								0							
Landlord Contr Furnace	0					0								0							
Landlord Contr DHW	0					0								0							
Client Contr (Any)	0					0								0							
Lead Safe Work	1					120								120							
Unspecifed/Other	0					0								0							

[1] Estimates are based upon reduced usage of the furnace due to shell improvements

[2] Impacts from continuous exhaust fans required by ASHRAE 62.2. The winter impacts exceed summer because these also include heating season impacts for dwellings with electric heat.

[3] The total number of dwellings may exceed the number of measures installed in cases where the utility partially funds refrigeration measure replacements. The percentage of expenditures for each appliance is totaled to get the total number of measures installed.

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APPENDIX A -- CLIENT CHARACTERISTICS

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Household characteristics										
Quarterly gross income	$4,002	$4,190	$4,130	$4,344	$4,355	$4,286	$4,406	$4,600	$6,691	$9,414
Average members	2.8	2.8	2.9	2.9	2.8	2.7	2.7	2.7	2.7	2.7
Percentage of households with:										
Elderly	31.5	34.2	24.0	29.1	29.4	30.8	28.9	31.3	34.4	35.5
Handicapped	42.7	35.7	25.4	32.9	30.1	32.6	31.3	30.6	34.1	33.4
Young children	21.5	21.5	18.6	25.2	21.9	20.1	22.4	19.4	17.4	20.7
Housing type (%)										
Single family home	87.7	87.9	82.6	89.6	87.3	84.8	87.4	88.4	88.1	89.1
Mobile home	7.5	9.9	7.6	10.0	10.2	11.9	10.6	8.6	7.9	7.2
Duplex	0.1	0.3	0.3	0.1	0.7	3.2	1.9	2.8	3.9	3.6
Three+ unit apartment	1.3	1.0	6.8	0.3	1.8	0.1	0.1	0.2	0.1	0.2
Rent a room	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unknown/other	3.5	1.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Heating system type (%)										
Natural gas	85.8	85.6	82.7	81.0	80.8	80.3	84.2	86.7	85.4	84.1
Propane	10.1	9.3	11.9	12.9	13.3	12.3	9.2	8.1	8.6	8.3
Fuel oil	0.7	0.3	0.8	0.8	0.8	0.9	0.2	0.1	0.5	1.1
Electricity	3.3	4.7	4.5	5.4	5.1	6.4	6.4	5.2	5.5	6.4
Other	0.1	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2
Air conditioning type (%)										
Central	52.5	55.3	54.1	58.7	57.3	60.2	63.6	62.0	62.6	64.9
Room	34.6	32.5	31.4	27.8	30.4	29.4	26.3	29.5	28.0	27.3
None or Missing Data	12.8	12.2	14.5	13.6	12.3	10.4	10.1	8.5	9.4	7.8
Blower door readings (average cfm50)										
Pre	3,608	3,374	3,281	3,294	3,454	3,281	3,437	3,429	3,420	3,447
Post	2,215	2,120	2,040	2,054	2,139	2,053	2,100	2,148	2,565	2,160

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APPENDIX B –FIGURE DATA

Figure 1.1 First Year Energy Savings (therms) – Program

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Heating System Work	114,444	173,277	286,866	286,414	192,441	102,711	116,295	113,515	107,412	89,404
Infiltration Reduction	26,915	37,383	54,194	59,030	35,991	24,403	24,864	22,482	20,948	16,743
Insulation	225,799	307,272	480,401	494,564	333,793	197,200	197,846	184,203	148,756	123,312
Light/Water Heat/Other Utilit	7,229	11,235	17,070	16,057	9,698	7,726	6,002	6,062	4,403	3,874
Water Heater Replacement	17,880	22,830	44,509	54,904	32,819	25,296	28,290	33,942	29,679	23,656
Whole House Ventilation								-2,392	-4,936	-4,269

Figure 1.2 First Year Energy Savings (kWh) – Program

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Heating System Work	2,159	3,693	6,770	8,324	4,975	3,937	186,516	201,190	185,546	159,209
Infiltration Reduction	53,435	81,711	146,544	150,295	59,937	39,935	46,035	32,037	41,401	42,306
Insulation	690,330	1,101,156	1,779,971	1,811,722	759,702	466,832	466,307	358,537	446,239	470,351
Light/Water Heat/Other Utilit	1,195,736	1,799,651	2,589,000	2,734,566	947,748	596,538	567,195	572,018	371,009	369,048
Water Heater Replacement	9,621	9,359	15,535	19,171	7,824	12,343	14,023	15,089	17,269	15,857
Whole House Ventilation								-24,538	-59,517	-70,405

Figure 1.3 Overall Program Expenditures

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Heating System Work	2,575,473	3,699,209	6,943,168	8,182,168	5,189,193	3,123,974	3,465,461	3,376,066	3,390,913	2,747,745
Infiltration Reduction	725,427	1,139,440	2,142,574	2,357,653	1,476,133	1,002,359	1,041,087	1,005,719	1,182,412	1,045,485
Insulation	3,848,467	6,258,426	10,920,427	12,616,772	7,584,763	4,317,731	4,509,492	4,279,518	4,188,388	3,440,858
Light/Water Heat/Other Utilit	611,081	838,645	1,198,884	1,233,806	720,138	424,488	356,538	327,532	328,738	241,252
Other	771,670	1,416,454	3,151,309	2,584,355	1,988,982	1,752,150	1,700,878	2,151,835	1,982,511	1,558,300
Repair	930,825	1,476,901	2,348,113	2,405,336	1,491,583	1,039,839	971,976	785,187	930,041	828,300
Support	3,550,464	5,626,121	9,459,046	8,932,316	5,818,840	4,656,124	4,864,035	4,756,716	5,302,237	4,570,198
Water Heater Replacement	521,733	777,795	1,673,951	2,426,666	1,527,656	1,034,375	1,316,775	1,562,901	1,579,574	1,289,234
Whole House Ventilation				687,151	648,556	367,224	488,871	368,924	1,018,951	898,996

Figure 1.4 Average Program Expenditures per Housing Unit

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Heating System Work	1,400	1,370	1,640	1,800	1,750	1,690	2,080	2,230	2,302	2,189
Infiltration Reduction	390	420	480	520	500	540	620	660	803	833
Insulation	2,090	2,320	2,420	2,780	2,550	2,330	2,710	2,830	2,843	2,742
Light/Water Heat/Other Ut	400	310	270	270	240	230	210	220	223	192
Other	350	520	600	690	670	950	1,020	1,420	1,346	1,242
Repair	500	550	520	530	500	560	580	520	631	660
Support	1,920	2,080	2,100	1,970	1,960	2,520	2,920	3,140	3,600	3,642
Water Heater Repl	280	290	370	540	510	560	790	1,030	1,072	1,027
Whole House Ventilation				150	220	200	290	240	692	716
	7,336	7,864	8,392	9,258	8,901	9,577	11,227	12,295	13,512	13,255

Figure 1.6 First Year Client Fuel Cost Savings (Nominal Dollars)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Whole House Ventilation								-5,593	-12,094	-13,169
Heating System Work	162,531	194,435	347,960	371,197	227,712	121,871	129,924	123,290	114,855	107,911
Infiltration Reduction	42,514	50,567	79,880	84,236	43,906	29,920	28,584	23,482	23,425	21,220
Insulation	372,028	438,803	731,293	759,964	424,194	256,624	234,798	199,673	183,128	174,531
Light/Water Heat/Other Ut	110,391	164,826	264,515	280,880	103,539	66,702	63,990	67,400	45,384	46,038
Water Heater Replacement	28,086	26,646	49,095	63,944	37,826	29,556	31,404	35,593	31,142	27,027

Figure 1.8 First Year Energy Savings (therms) – Utility only

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Heating System Work	68,807	67,873	77,401	111,218	67,910	60,813	70,795	67,323	69,667	58,964
Infiltration Reduction		3,350	4,425	10,340	5,358	5,129	5,467	4,923	4,784	5,275
Insulation	161,451	147,574	123,140	207,156	131,917	131,486	132,525	119,370	102,315	93,879
Light/Water Heat/Other Utilit	4,680	5,107	4,134	6,809	4,029	4,604	3,911	3,852	2,809	2,838
Water Heater Replacement	7,333	7,808	10,499	25,346	13,943	15,335	15,826	18,230	17,885	16,361

Figure 1.9 First Year Energy Savings (kWh) – Utility only

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Heating System Work		832	536	3,286	417	224	64,339	66,083	71,506	66,476
Infiltration Reduction	13	7,456	11,035	18,659	7,535	6,267	9,268	8,069	8,430	12,372
Insulation	465,814	491,564	497,304	613,470	264,752	237,590	282,915	212,946	283,722	321,895
Light/Water Heat/Other Utilit	720,681	705,236	704,991	922,461	347,294	336,976	344,858	350,640	218,339	251,166
Water Heater Replacement	3,727	5,779	8,485	11,516	4,774	3,587	5,753	6,780	9,119	9,580

Figure 1.10 Utility Expenditures

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Heating System Work	1,099,188	1,052,918	1,207,970	2,082,247	1,176,515	1,200,207	1,557,590	1,520,693	1,594,196	1,379,543
Infiltration Reduction	29	72,138	142,164	288,225	173,869	172,746	198,737	204,838	212,265	273,962
Insulation	2,238,735	2,417,435	2,285,914	3,753,358	2,295,748	2,306,634	2,528,094	2,353,124	2,422,997	2,190,461
Light/Water Heat/Other Utilit	327,658	291,378	296,528	375,480	249,184	227,782	200,560	188,571	180,770	160,696
Other	63,409	51,664	60,862	128,109	72,842	62,892	107,646	124,082	147,766	176,289
Repair	170,974	163,350	104,189	157,260	96,832	104,157	129,832	121,538	123,880	168,145
Support	463,990	495,431	458,520	706,131	420,502	466,296	564,572	523,448	602,760	585,371
Water Heater Replacement	161,764	193,094	272,140	702,797	414,525	481,837	597,828	762,163	849,809	815,113