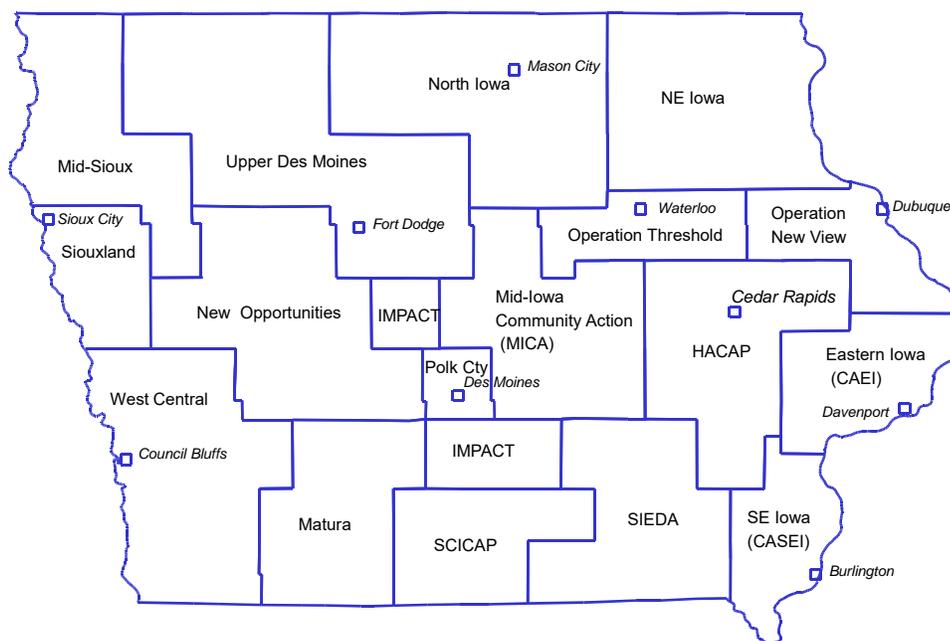


REPORT ON THE IMPACTS AND COSTS OF THE IOWA LOW-INCOME WEATHERIZATION PROGRAM -- Calendar Year 2018

October 22, 2019

Iowa Local Weatherization Agencies



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Calendar Year 2018**

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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 2018 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 program¹. The estimated impacts were adjusted using billing analysis of the program clients.

PROGRAM COSTS AND IMPACTS

The WAP program spent \$15,924,624 for materials, labor, and support while installing measures in 1,157 dwellings during calendar year (CY) 2018. Funding decreased by 4.3% from the prior year. Federal and state funding accounted for 66.5% of overall expenditures while utilities funded the remaining 33.5%.

The program expenditures for materials, labor, and support averaged \$13,764 in 2018 compared to \$13,255 in 2017 (a 3.8% increase). The major measures installed by the program in 2018 are essentially unchanged from the 2017 program.

First-year savings totaled 223,190 therms; 898,120 kWh electricity; 18,810 gallons of propane; and 493 gallons of fuel oil. First-year peak demand savings totaled 2,402 therms, 266 kW summer demand, and 229 kW winter demand.

Electricity savings averaged 776 kWh for 1,140 dwellings with electricity impacts. The program saved an average of 222 therms of natural gas for 1,005 dwellings with gas impacts. In addition, the program delivered first-year savings of 258 gallons of propane in 73 dwellings with propane impacts, and 164 gallons of fuel oil in 3 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 \$299,292, averaging \$259 per housing unit.

	Electricity (kWh and kW)			Natural Gas (therms)			Propane (gals)	Fuel Oil (gals)
	Overall	DCAA	Utility	Overall	DCAA	Utility	DCAA	DCAA
Energy	898,120	334,060	564,060	223,190	72,410	150,780	18,810	493
Summer Demand	266	96	170	NA	NA	NA	NA	NA
Winter Demand	229	99	130	2,402	780	1,623	NA	NA

Average Impacts¹ 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	776	293	686	222	74	194	258	164
Summer Demand	0.230	0.084	0.207	NA	NA	NA	NA	NA
Winter Demand	0.198	0.087	0.158	2.4	0.8	2.1	NA	NA

Expenditures and First Year Client Fuel Bill Savings

Totals	Overall	DCAA	Utility	Averages	Overall	DCAA	Utility
Expenditures²	\$15,924,624	\$10,594,269	\$5,330,356	Expenditures	\$13,764	\$9,157	\$5,689
Client Fuel Savings	\$299,292	\$119,459	\$179,833	Client Fuel Savings	\$259	\$103	\$192

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, excludes 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 \$5,330,356 for weatherization measures, accounting for 33.5% of total program expenditures. The utility expenditures averaged \$5,689 for the 937 dwellings that received utility-funded measures.

Utility-funded measures saved a total of 564,060 kWh, averaging of 686 kWh of electricity for the 822 dwellings with utility-funded electricity measures. Utility funded measures also saved a total of 150,780 therms, averaging 194 therms of natural gas for the 776 dwellings with utility-funded natural gas measures. Utility-funded measures reduced peak electricity demand by 170 kW in the summer and 130 kW in the winter, and provided 1,623 peak-day therms of gas savings. Utility-funded measures accounted for 62.8% of program electricity savings and 67.6% of program gas savings.

Utility-funded measures yielded first-year client bill savings of \$179,833, averaging \$192 per dwelling that received utility-funded efficiency measures. Electricity bill savings averaged \$79 per household for utility-funded electricity measures. Gas bill savings averaged \$148 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 241 therms \pm 33 at 90% confidence. This represents a 23.7% savings \pm 2.8% at 90% confidence for natural gas measures. Mobile home savings averaged 173 therms \pm 87 at 90% confidence, equating to a 21.5% savings \pm 9.1%.

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 2018 program found that savings averaged 833 kWh \pm 5,204 for dwellings with electric main heat, and 645 kWh \pm 678 for dwellings heated with other fuels.

CHANGES IN PROGRAM DELIVERY AND REPORTING

There were no significant changes in major shell and heating system measure delivery as compared to the previous year. LED lighting, which began in 2017, continues to displace CFLs in the 2018 program.

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 2018.

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 1,157 dwelling units were weatherized to completion during calendar year (CY) 2018, compared to 1,255 in 2017. First-year savings totaled 223,190 therms; 898,120 kWh electricity; 18,810 gallons of propane; and 493 gallons of fuel oil. First-year peak demand savings totaled 2,402 peak-day therms, 266 kW summer demand, and 229 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).

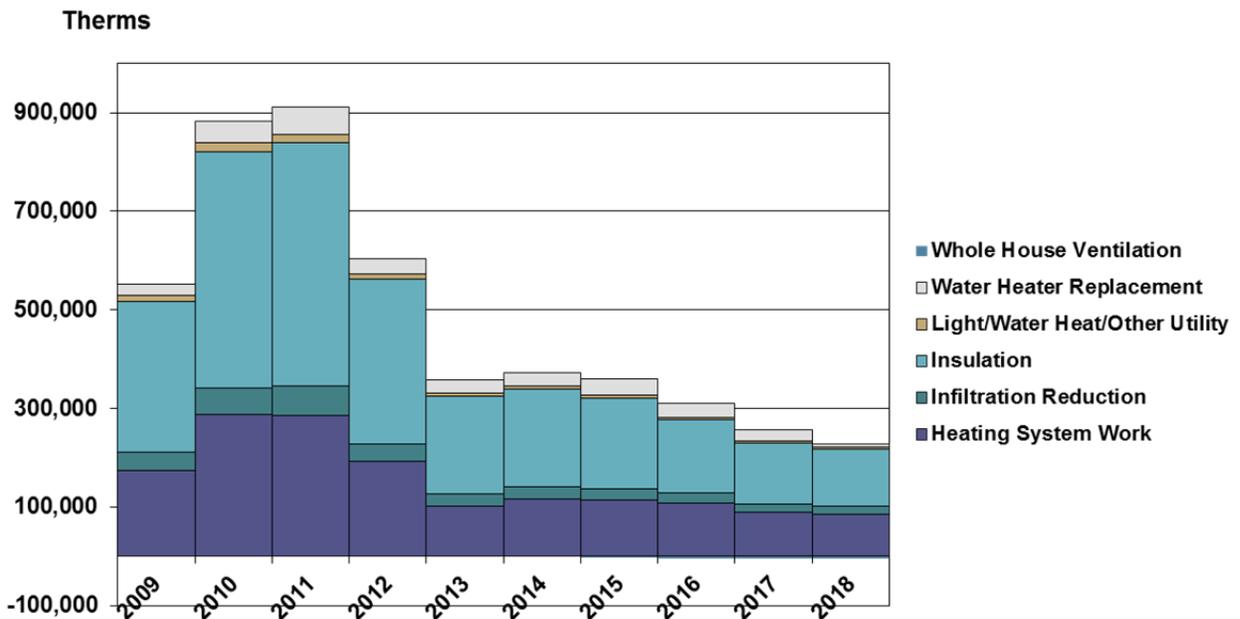


Figure 1.1 First Year Energy Savings (therms) – Program

Taken together, insulation, infiltration reduction, and heating system replacement work accounted for 98% 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	84,822	38.0%
Infiltration Reduction	16,078	7.2%
Insulation	116,900	52.4%
Light/Water Heat/Other Utility	3,586	1.6%
Water Heater Replacement	5,486	2.5%
Whole House Ventilation	-3,681	-1.6%

Electricity savings totaled 898,120 kWh for the program overall (Figure 1.2).

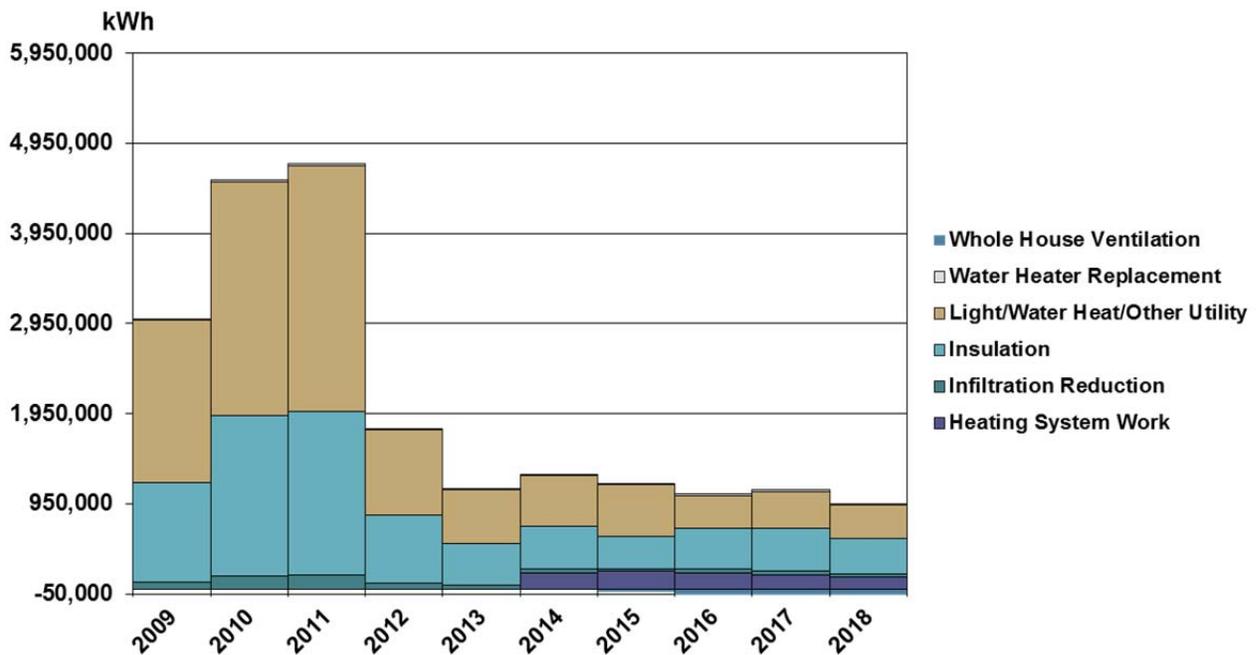


Figure 1.2 First Year Energy Savings (kWh) – Program

Insulation measures were credited with 44% of electricity savings (including all cooling savings and heating savings for homes with electric heat). Lighting, electric water heating measures, and refrigerator and freezer replacements and removals accounted for 42% (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	141,656	15.8%
Infiltration Reduction	32,996	3.7%
Insulation	393,957	43.9%
Light/Water Heat/Other Utility	372,411	41.5%
Water Heater Replacement	12,699	1.4%
Whole House Ventilation	-55,641	-6.2%

Program expenditures for materials, labor, and support totaled \$15,924,624, decreasing by 4.3 percent from \$16,634,427 spent in 2017 (see Figure 1.3).

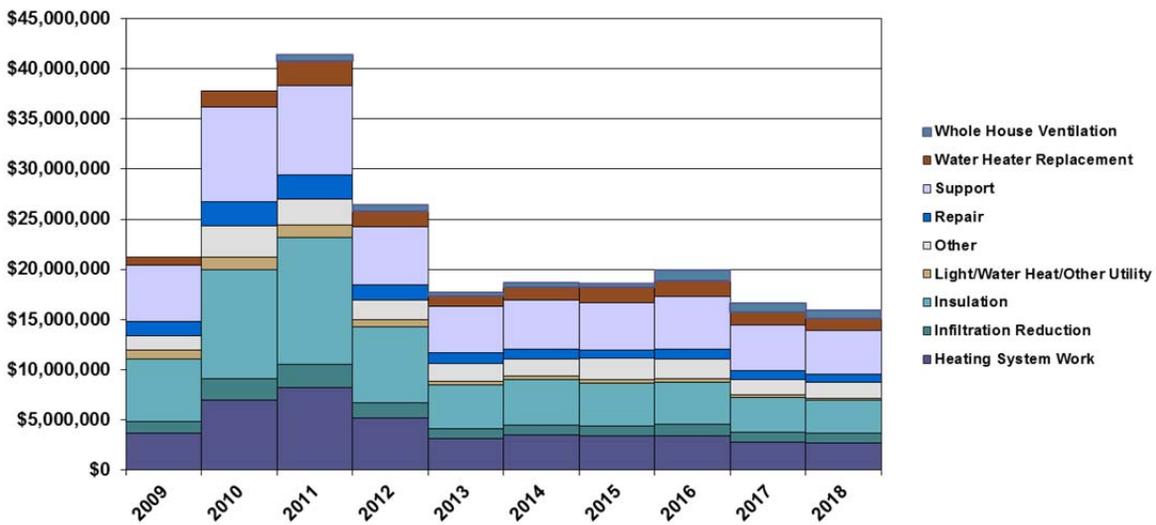


Figure 1.3 Overall Program Expenditures

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 27.2% 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 24.2% of expenditures. The remainder of costs including repairs, whole house ventilation, and health and safety measures which together total 20.1%.

Table 1.3 Expenditures by Major Measure Category

Measure Group	Expenditures	Percentage
Heating System Work	\$2,639,470	16.6%
Infiltration Reduction	\$1,050,911	6.6%
Insulation	\$3,296,812	20.7%
Light/Water Heat/Other Utility	\$181,688	1.1%
Other	\$1,558,818	9.8%
Repair	\$841,939	5.3%
Support	\$4,333,342	27.2%
Water Heater Replacement	\$1,216,971	7.6%
Whole House Ventilation	\$802,972	5.0%

The nominal average household expenditures for all dwellings weatherized in 2018 increased by 3.7% to \$13,762 (Figure 1.4, historical data is listed in Appendix B as Fig 1.4). Nominal average expenditures have remained essentially flat over the past three years of the program.

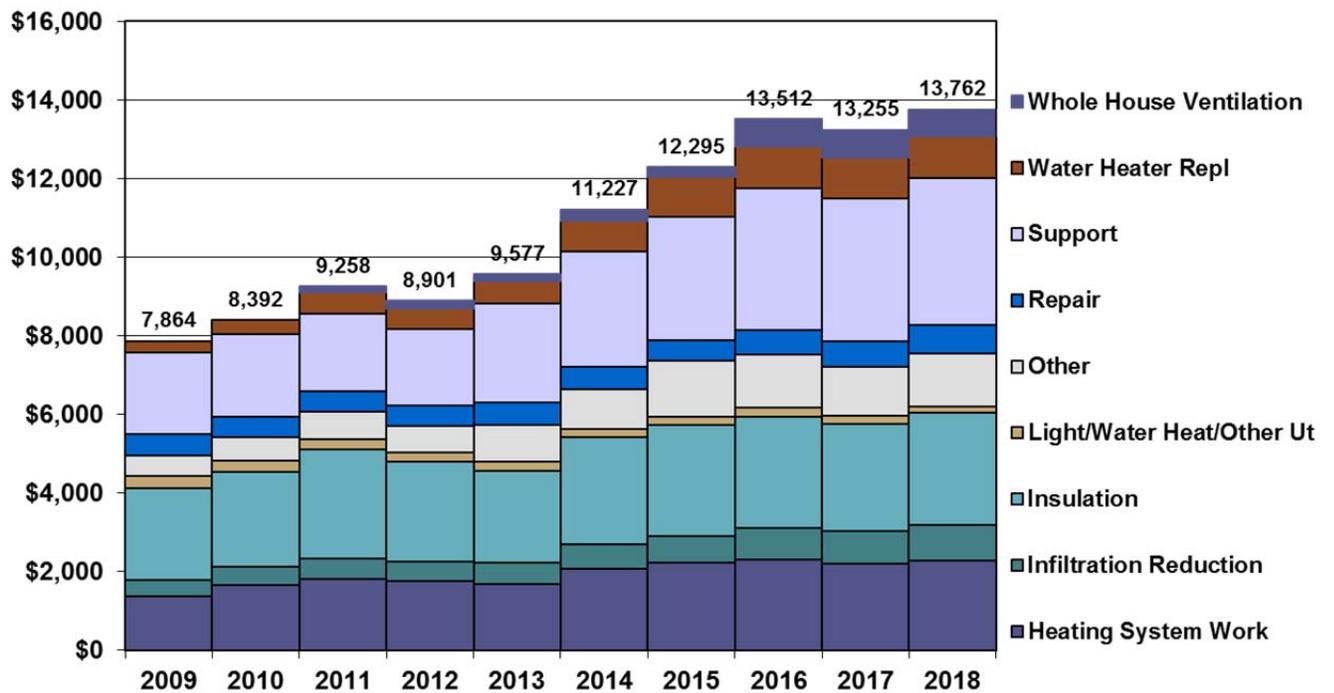


Figure 1.4 Average Program Expenditures per Housing Unit

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 0.6%, gas prices decreased by 5.7%, fuel oil prices increased by 0.7%, and propane prices decreased by 7.0%.

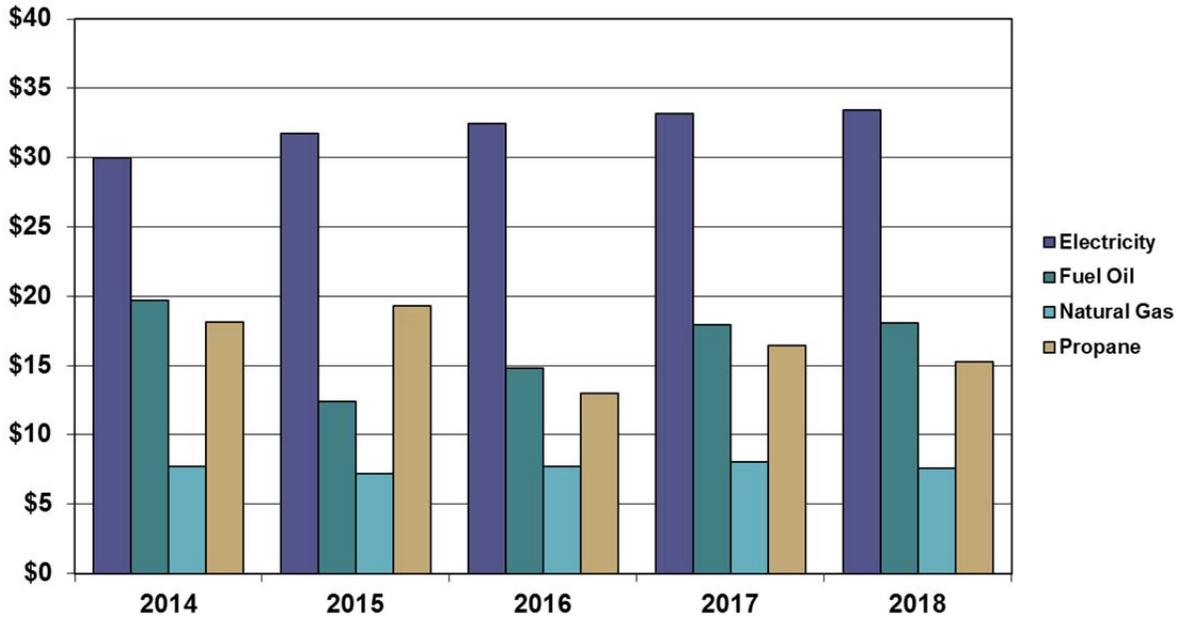


Figure 1.5 Average Fuel Cost per MBtu (Nominal Dollars)

The nominal first year client energy bill savings totaled \$299,300 (Figure 1.6, historical data is listed in Appendix B as Fig 1.6).

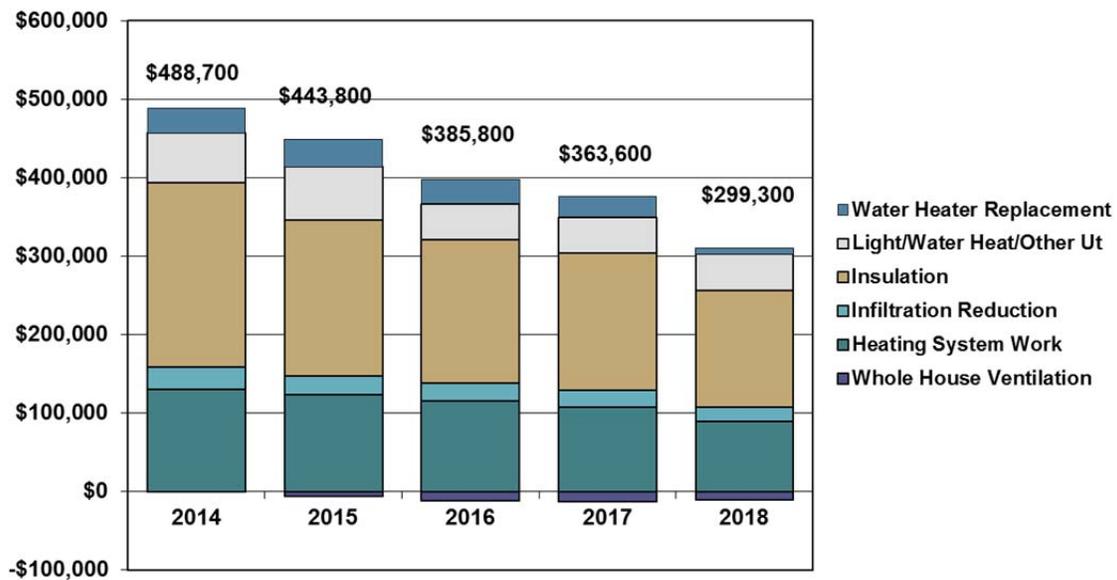


Figure 1.6 First Year Client Fuel Cost Savings (Nominal Dollars)

Insulation, infiltration reduction, and heating system work accounted for 86% 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 15%.

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

Measure Group	Fuel Bill Savings	Percentage
Heating System Work	\$89,550	29.9%
Infiltration Reduction	\$17,763	5.9%
Insulation	\$149,405	49.9%
Light/Water Heat/Other Utility	\$46,041	15.4%
Water Heater Replacement	\$7,249	2.4%
Whole House Ventilation	-\$10,721	-3.6%

First-year client fuel bill savings averaged \$259 (Figure 1.7), decreasing from \$290 in 2017, driven in part by reductions in fuel prices for gas and propane as well as slight reductions in gas savings.

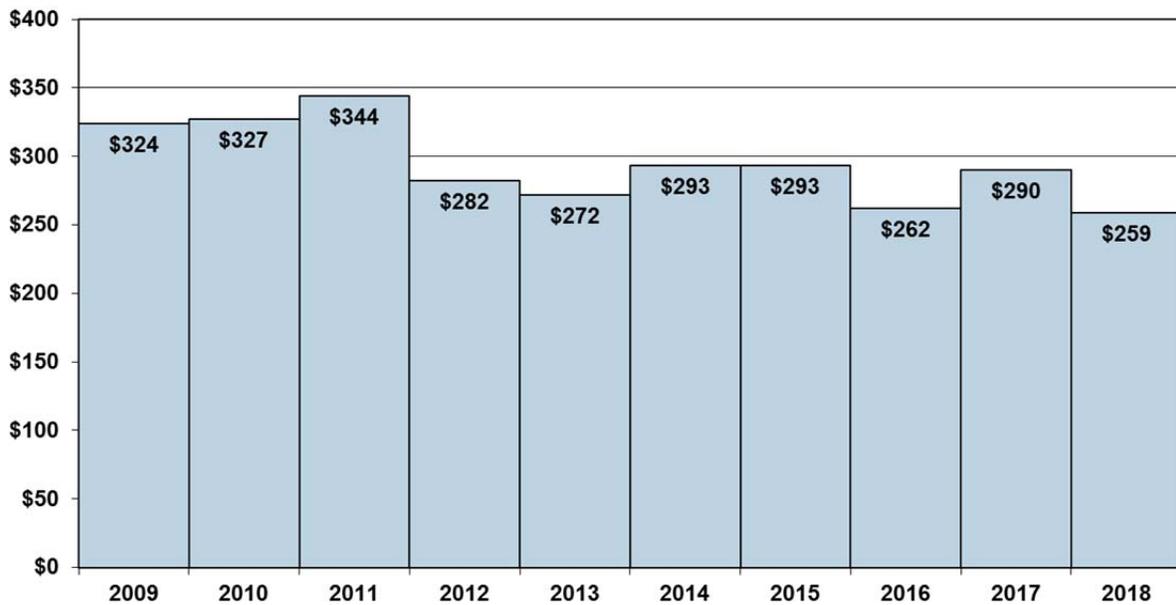


Figure 1.7 Average Annual Client Fuel Bill Savings per Housing Unit

Natural gas savings provided 57% of client bill savings, electricity accounted for 34%, propane accounted for 9%, and fuel oil provided less than 1%.

Approximately 46% 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 72% of total

client bill savings. Cooling savings accounted for another 11% of client bill savings, and lighting, refrigeration, and water heater measures accounted for 8%.

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 \$14,121 over all fuel types, and provide \$270 in first-year bill savings per unit. Savings averaged \$254 for gas-heated units, \$469 for propane heated units, \$509 for fuel oil heated units, and \$261 for electrically-heated units.

Expenditures for mobile homes averaged \$11,469 overall and provided first-year client bill savings of \$135. Savings for gas-heated units averaged \$131, propane-heated mobile homes saved \$233 per unit, and electrically-heated mobile homes save \$71 (only 2 cases).

Expenditures for multi-family units heated with gas averaged \$10,666 and had first-year client bill savings of \$250. Gas-heated multifamily units saved \$248 and electrically-heated multi-family unit saved \$283 (only three units).

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

	Number of Units	Main Heat		Electricity		Expenditures	Total Bill Savings
		Savings (therms, gals)	Bill Savings (\$)	Savings (kWh)	Bill Savings (\$)		
Site Built Single Family	1,017		\$177		\$92	\$14,121	\$270
Gas	875	231	\$176	677	\$78	\$14,359	\$254
Propane	68	267	\$374	828	\$95	\$13,894	\$469
Fuel Oil	3	164	\$413	840	\$97	\$19,715	\$509
Electricity	71	-	-	2,426	\$261	\$11,175	\$261
Mobile Home	87		\$85		\$50	\$11,469	\$135
Gas	80	108	\$81	438	\$49	\$11,574	\$131
Propane	5	131	\$184	436	\$49	\$11,281	\$233
Fuel Oil	-	-	-	-	-	-	\$0
Electricity	2	-	-	625	\$71	\$7,740	\$71
Multi-Family	53		\$173		\$77	\$10,666	\$250
Gas	50	241	\$183	561	\$64	\$10,840	\$248
Propane	-	-	-	-	-	-	\$0
Fuel Oil	-	-	-	-	-	-	\$0
Electricity	3	-	-	2,624	\$283	\$7,760	\$283

UTILITY SAVINGS AND EXPENDITURES

The utilities funded measures in 937 dwelling units, with first year savings totaling 150,780 therms and 564,060 kWh. These measures reached 81% of all units weatherized by the program, and accounted for 63% of electricity savings and 68% of gas 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).

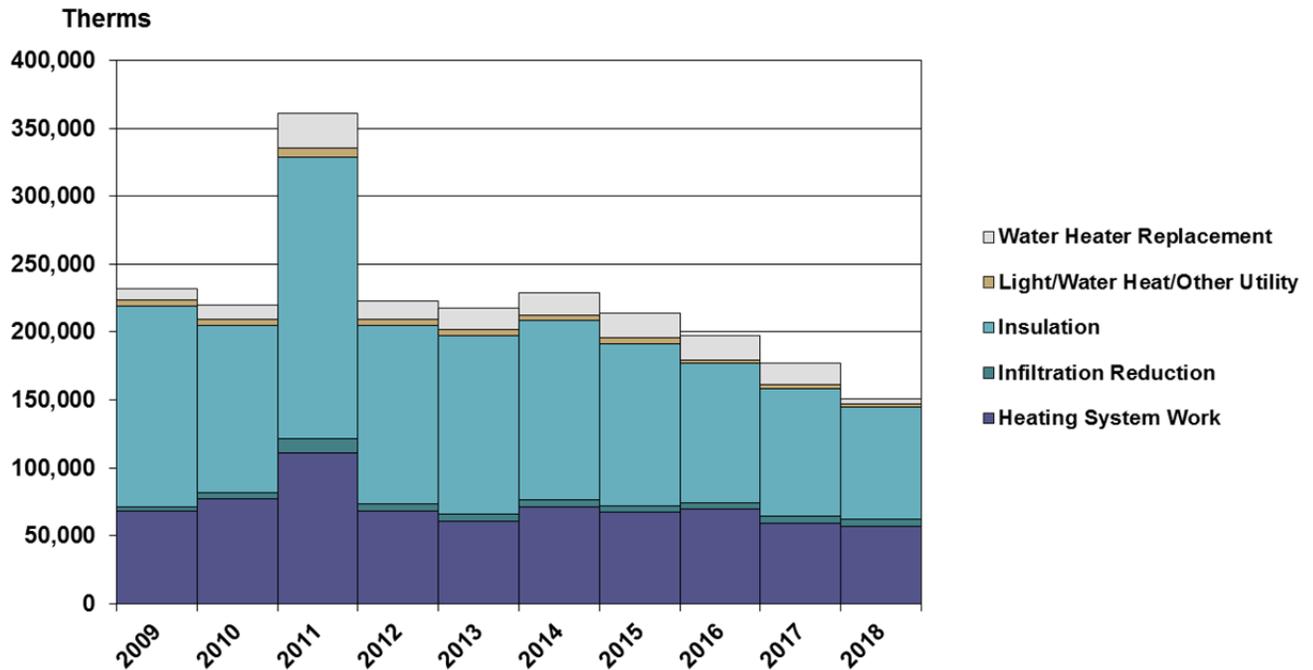


Figure 1.8 First Year Energy Savings (therms) – Utility only

Utility expenditures on gas measures were largely directed at insulation (55% of savings) and heating system work (38%). 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	56,587	37.5%
Infiltration Reduction	5,361	3.6%
Insulation	82,856	54.9%
Light/Water Heat/Other Utility	2,480	1.6%
Water Heater Replacement	3,501	2.3%

The ten year history of electricity measure savings are shown in Figure 1.9 (historical data is provided in Appendix B listed as Fig 1.9).

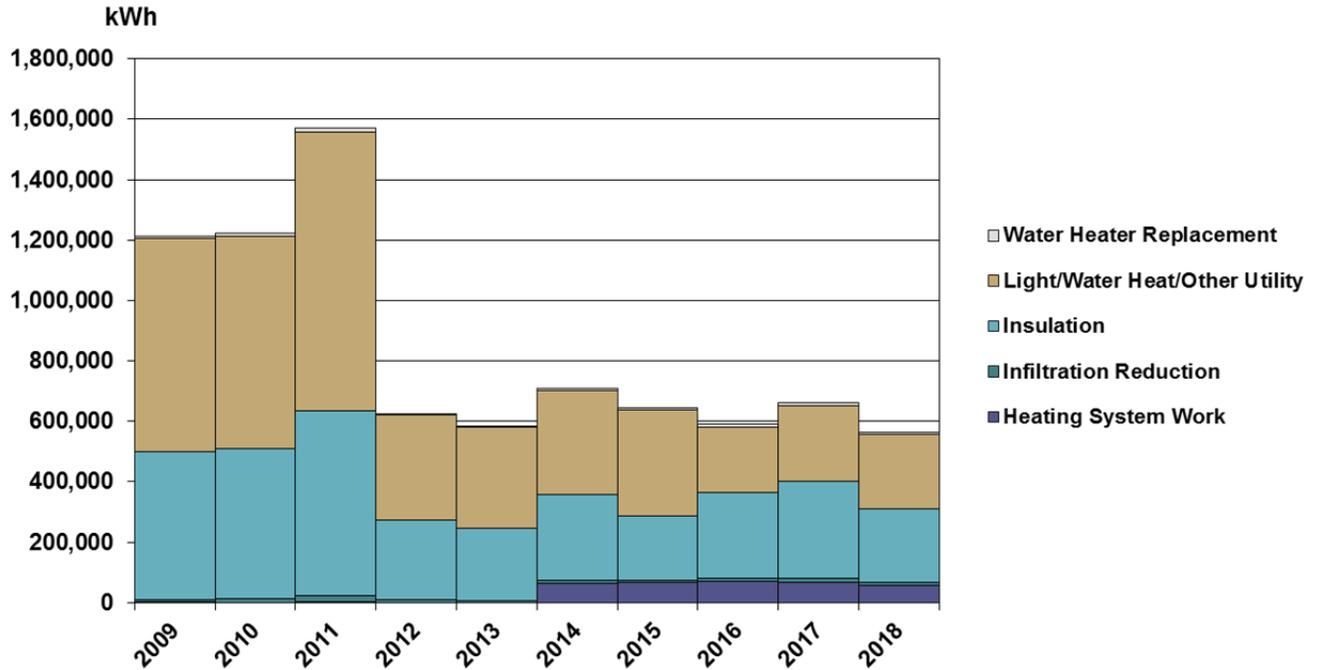


Figure 1.9 First Year Energy Savings (kWh) – Utility only

The electricity savings attributed to insulation include cooling savings and heating savings in units with electric main heat; these accounted for 43% of electricity savings. Another 45% 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	56,869	10.1%
Infiltration Reduction	9,802	1.7%
Insulation	242,091	42.9%
Light/Water Heat/Other Utility	247,622	43.9%
Water Heater Replacement	7,629	1.4%

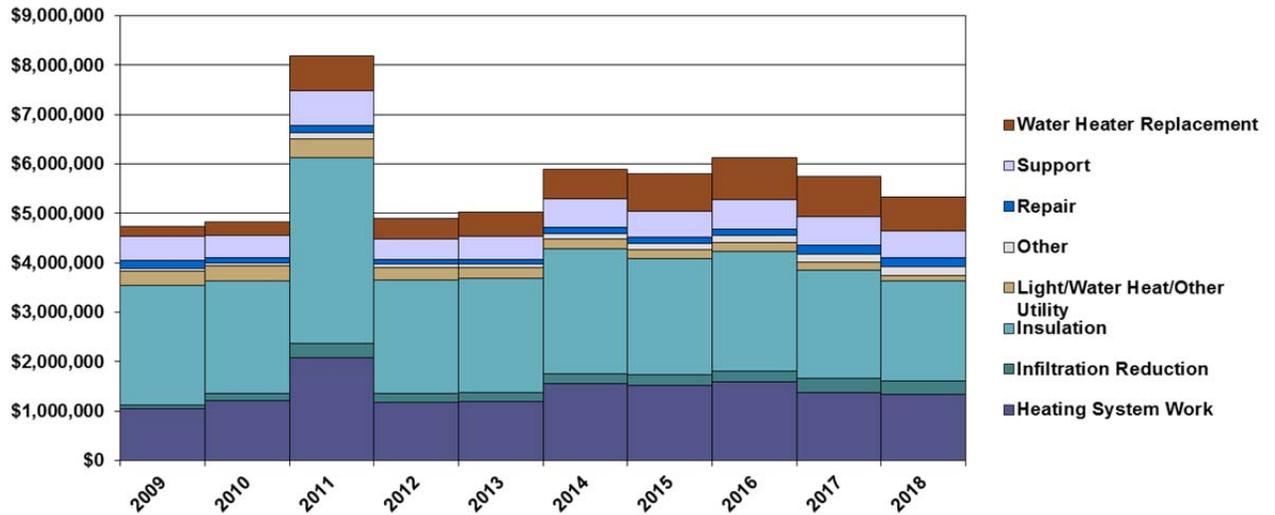


Figure 1.10 Utility Expenditures

The utilities spent \$5,330,356 for program measures, labor, and support in 2018, 7.3% less than in 2017 (Figure 1.10, Table 1.8, historical data in Appendix B listed as Fig 1.10). Utility expenditures accounted for 33.5% of the total low-income program expenditures.

Table 1.8 Expenditures by Measure Group – Utility only

Measure Group	Expenditures	Percentage
Heating System Work	\$1,344,597	25.2%
Infiltration Reduction	\$271,847	5.1%
Insulation	\$2,014,536	37.8%
Light/Water Heat/Other Utility	\$106,432	2.0%
Other	\$182,118	3.4%
Repair	\$177,192	3.3%
Support	\$548,279	10.3%
Water Heater Replacement	\$685,224	12.9%

In addition, the utilities spent \$220,966 on program administration. Utility expenditures totaled \$5,551,322 including spending on program measures, labor, support, and administration.

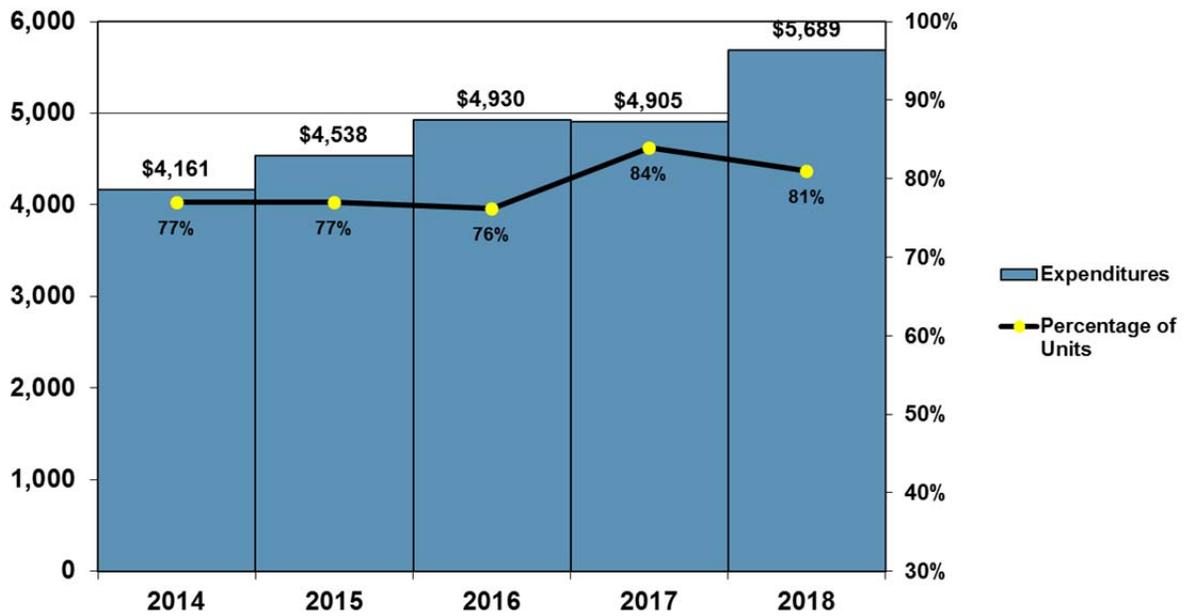


Figure 1.11 Average Utility Spending on Efficiency Measures (excludes Support and Administration), and Percentage of Homes Receiving Utility-Funded Measures with Impacts

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 81% of units, decreasing slightly from 2017. The utilities expenditures averaged \$5,689 on units that received utility measures.

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

Utility	Total Expenditures		Counts of Dwellings With Energy Impacts			
	Excluding Program Support	With Program Support	Electric Impacts	Pct of Prg	Gas Impacts	Pct of Prg
Alliant IPL	\$ 2,202,200	\$ 2,443,800	480	41.5%	315	31.3%
Black Hills Corp	\$ 486,000	\$ 537,700			123	12.2%
MidAmerican	\$ 2,093,800	\$ 2,348,800	342	29.6%	337	33.5%
Total Utilities	\$ 4,782,100	\$ 5,330,400	822	71.0%	776	77.2%

Note: expenditures exclude utility administration costs

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		Summer Demand Savings		Winter Demand Savings		First Year Fuel Cost Savings	
	(kWh)	Pct of Prg	(kW)	Pct of Prg	(kW)	Pct of Prg		Pct of Prg
Electricity								
Alliant IPL	298,120	33.2%	90	35.5%	62	26.9%	\$ 34,340	33.5%
MidAmerican	265,940	29.6%	80	28.6%	68	29.8%	\$ 30,360	29.7%
Total Electric Utilities	564,060	62.8%	170	64.0%	130	56.6%	\$ 64,710	63.2%
Gas					Peak Day			
	Therms				Therms			
Alliant IPL	64,600	28.9%			702	29.2%	\$ 49,220	29.1%
Black Hills Corp	19,040	8.5%			202	8.4%	\$ 14,520	8.6%
MidAmerican	67,060	30.0%			718	29.9%	\$ 51,320	30.3%
Total Gas Utilities	150,780	67.6%			1,623	67.5%	\$ 115,130	68.0%

Utility-funded measures yielded first-year client bill savings of \$179,833, averaging \$192 per dwelling that received utility-funded measures. Electricity bill savings from utility-funded measures averaged \$79 per household for utility-funded electricity measures. Gas bill savings from utility-funded measures averaged \$148 for households with utility-funded gas measures.

Table 1.11 provides the cost of energy savings for utility-funded measures with energy impacts. The first year cost of conserved energy over all housing types ranged from \$22.71 to \$28.33 per therm and \$1.05-\$1.36 per kWh (we ignored groups with fewer than 20 units for both gas and electricity).

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

	Cost of Gas		Cost of Elec	
	Savings	Number of Units	Savings	Number of Units
Alliant-IPL				
Overall	\$24.44	316	\$1.34	480
Site-Built	\$24.53	283	\$1.36	415
Mobile Home	\$26.80	11	\$1.16	29
Multi-family	\$22.71	22	\$1.25	36
Black Hills Corp				
Overall	\$23.22	123	-	
Site-Built	\$23.77	113	-	
Mobile Home	\$24.53	3	-	
Multi-family	\$14.86	7	-	
MidAmerican				
Overall	\$24.53	337	\$1.06	342
Site-Built	\$25.09	294	\$1.05	311
Mobile Home	\$28.33	40	\$1.29	27
Multi-family	\$5.83	3	\$0.87	4

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 all measures except infiltration reduction, freezer exchanges, repairs, heating system tune and cleans, and support.

Table 1.12 Utility Funding Percentages by Measure

Measure	Expenditures		Utility Percentage
	Total	Utility	
Wall Insulation	\$1,239,861	\$821,773	66.3%
Attic Insulation	\$1,264,540	\$821,109	64.9%
Kneewall Insulation	\$95,205	\$62,985	66.2%
Floor/Crawlspace Insulation	\$301,463	\$199,399	66.1%
Bandjoist Insulation	\$98,069	\$62,262	63.5%
Infiltration Reduction	\$1,050,911	\$271,847	25.9%
High Efficiency Htg Sys Repl.	\$2,187,309	\$1,281,493	58.6%
Electric Htg Sy/Ht Pump Repl.	\$101,715	\$37,977	37.3%
Pipe Wrap	\$16,720	\$10,949	65.5%
Faucet Aerator	\$1,767	\$1,113	62.9%
Shower Head	\$1,544	\$970	62.8%
Water Heater Replacement - Hi Eff	\$1,216,971	\$685,224	56.3%
Lighting	\$45,336	\$30,651	67.6%
Exchange Refrigerator	\$93,673	\$53,921	57.6%
Exchange Freezer	\$22,615	\$8,947	39.6%
Repairs	\$841,939	\$177,192	21.0%
Programmable Thermostat	\$5,923	\$5,665	95.6%
Htg Sys Tune/Clean	\$84,892	\$19,461	22.9%
Htg Sys Ventilation	\$172,916	\$91,711	53.0%
Water Heater Ventilation	\$106,241	\$60,806	57.2%
Support	\$4,333,342	\$548,279	12.7%

EXPENDITURES AND SAVINGS BY AGENCY AND MEASURE

This section provides breakouts of expenditures and savings by agency. Each agency receives funding from multiple vendors and DCAA (Table 1.13). 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. Agency-specific detail is provided in Sections 4 and 5 of this report.

Table 1.13 Counts of Completed Units by Agency and Funding Entity

Agency	Units With Funding				
	State	DCAA	Alliant-IPL	Black Hills	MidAmerican
NewOpp	48	48	23	8	30
HACAP	124	124	105	4	56
CAEI	85	85	39	0	39
Matura	29	29	13	0	2
MICA	65	65	52	7	4
Mid-Sioux	35	35	7	0	19
North Iowa	18	18	15	1	2
NE Iowa	100	100	68	41	5
New View	62	62	42	32	0
Threshold	76	76	6	2	53
IMPACT	30	30	17	2	15
SCICAP	21	21	17	0	3
CASEI	67	67	61	0	4
SIEDA	81	81	51	0	21
Upper Des Moines	68	68	21	14	22
West Central	40	40	8	12	33
CASiouxland	29	29	0	1	27
Polk County	179	179	0	0	96
Total	1157	1157	545	124	431

Figure 1.12 provides the first-year client bill 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.

The statewide average client bill savings was \$259 per dwelling. The average first-year client bill savings widely varied across agencies, from a low of \$167 per dwelling for Northeast Iowa to a high of \$405 for North Iowa. The wide variation in results across agencies is typical of what we've observed in past years. 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.

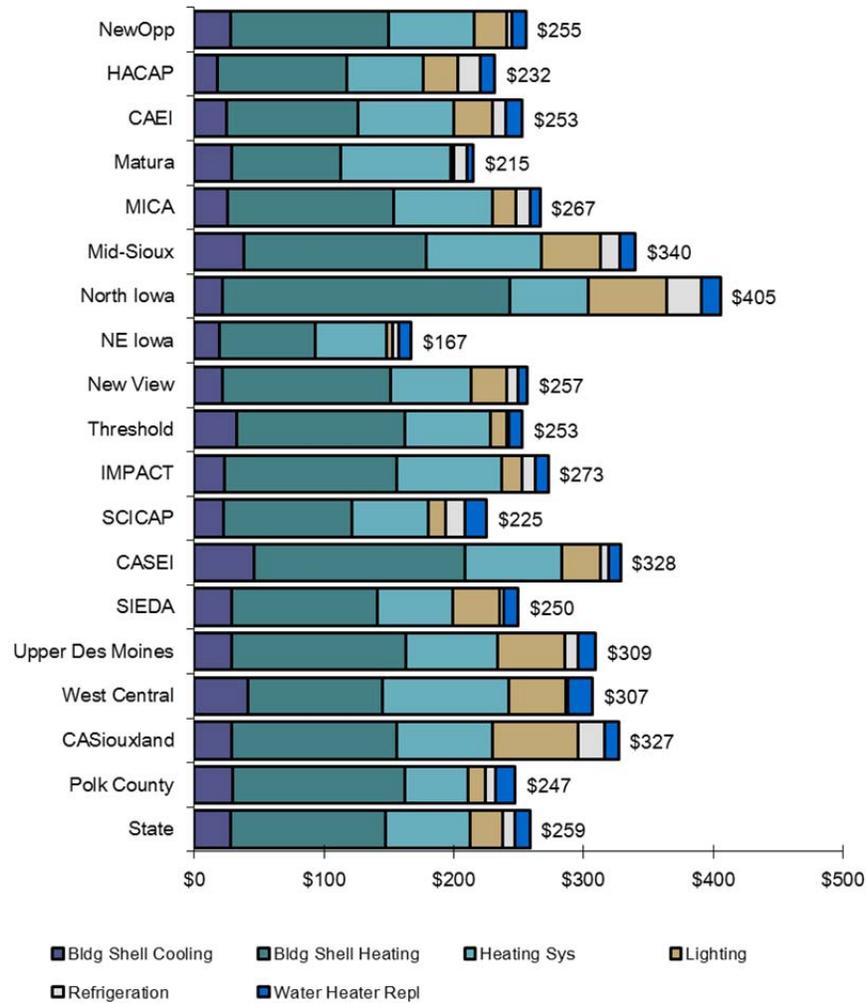


Figure 1.12 Average Annual Fuel Bill Savings per Housing Unit by Agency

Figure 1.13 shows the average expenditures for all households with impacts, ranging from a low of \$7,526 for Northeast Iowa to \$18,396 for West Central. The statewide average expenditure was \$13,762 per dwelling unit.

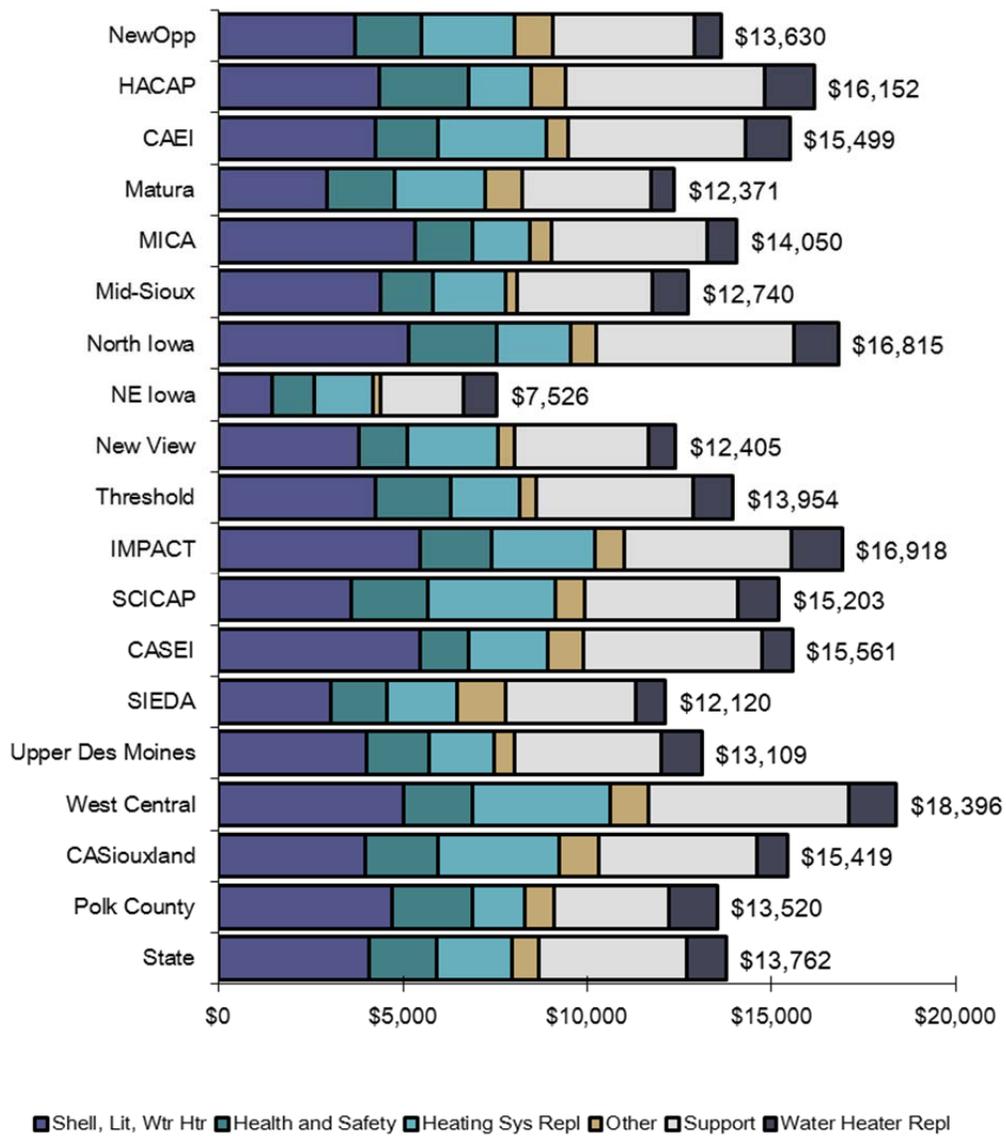


Figure 1.13 Average Expenditures per Housing Unit by Agency

The average installation rates, costs, and savings for energy efficiency and heating and water heating system replacement measures for calendar year programs 2016-2018 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 increased by 2.5% percentage points over 2017 levels, but remained below those in 2016. Non-condensing heating system replacements decreased to 3.5%, a 4% percentage point reduction.

The installation rates of water heater efficiency measures decreased slightly year over year. The installation rates of high-efficiency water heater replacements also decreased to 64% from 66% the prior year. Refrigerator replacement rates decreased to 11% from 16%.

Figure 1.14a, right chart, shows that the average measure costs. Insulation costs increase slightly for wall and ceiling insulation. The cost for condensing heating systems increased by \$147, to \$3,013. The cost for non-condensing heating systems increased considerably, to \$2,370 in 2018 but remain lower than costs in 2016. The cost of high efficiency water heater replacements increased slightly to \$1,645.

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

The average natural gas savings for insulation measures were little changed from the prior year.

Gas savings for condensing heating systems increased slightly to 122 therms. Non-condensing heating system savings decreased to about the same level as seen in the 2016 program. Non-condensing heating systems are installed for health and safety reasons in cases where condensing heating systems cannot be installed due to ventilation issues or other atypical situations.

The average electricity savings for wall insulation decreased slightly to 212 kWh. Ceiling/attic insulation savings declined to 279 kWh per unit from 312 kWh in 2017. These differences are driven in part by year-to-year variation in housing stock for the few housing units that use electric main heat.

Lighting measure savings increased to 330 kWh per unit from 230 in 2017.

Savings for the three refrigerator removals were lower.

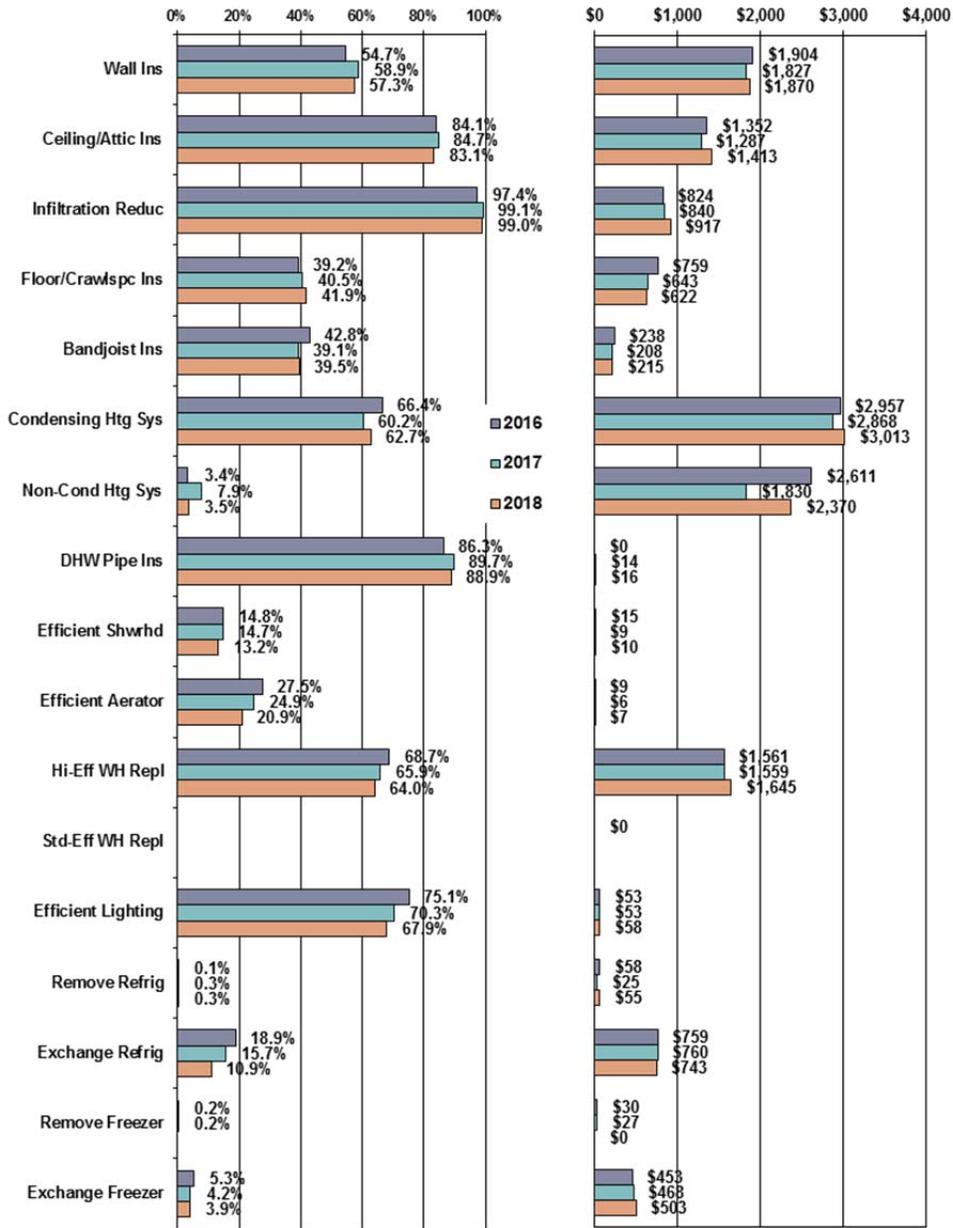


Figure 1.14a Average Installation Rates and Measure Costs of Efficiency Measures, Heating System and Water Heating Replacements

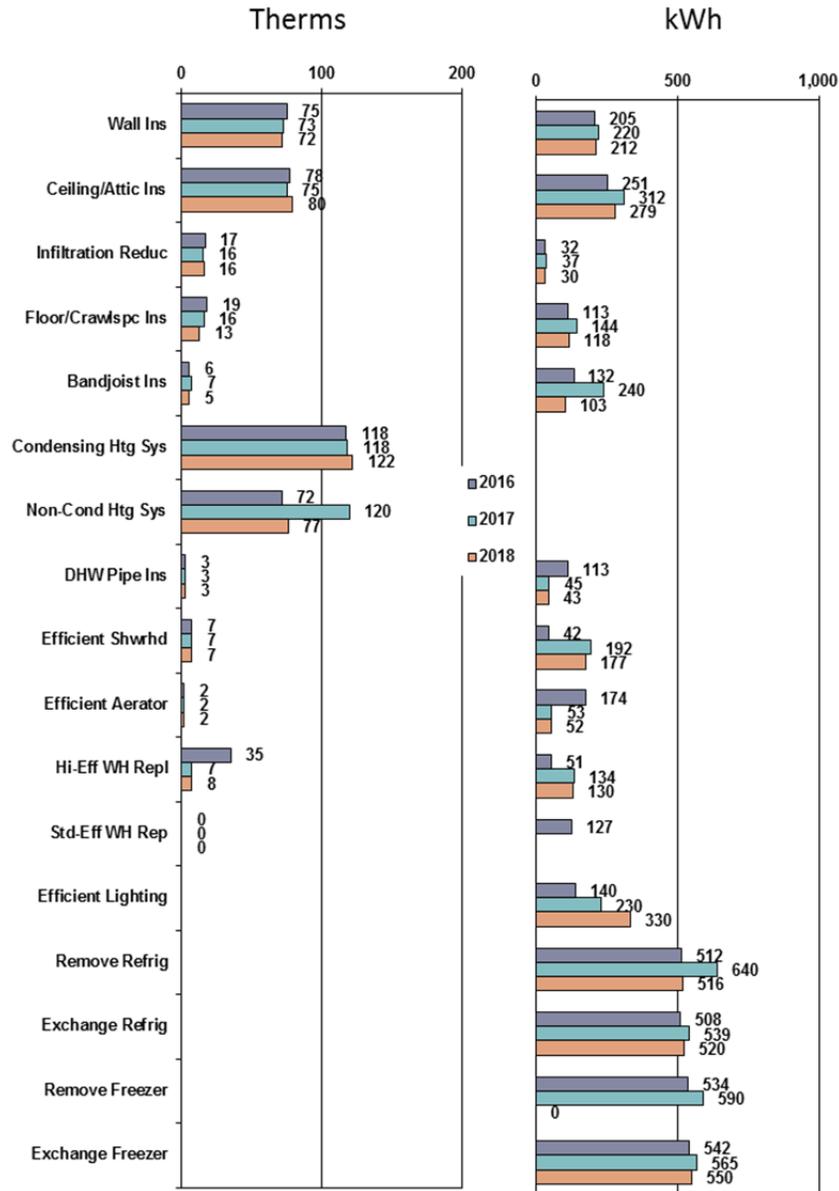


Figure 1.14b Average Gas and Electricity Savings of Efficiency Measures, Heating System and Water Heating Replacements

Tables 1.14 and 1.15 provide tabular data corresponding to data shown in Figures 1.14a and 1.14b but over a five year period. Table 1.14 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 1.14 Installation Rates of Measures

Measure	2014	2015	2016	2017	2018	Recent Year Change (%)
<i>Insulation and Infiltration Reduction Measures</i>						
Wall Insulation	60.4	61.4	55.1	58.9	57.3	-2.7%
Ceiling/Attic Insulation	83.1	85.1	84.7	84.7	83.1	-1.8%
Floor/Crawlspace Insulation	43.5	42.4	39.4	40.5	41.9	3.6%
Bandjoist Insulation	39.6	45.2	43.1	39.1	39.5	1.0%
Infiltration Reduction	97.4	98.3	98.1	99.1	99.0	-0.1%
<i>Heating System Measures</i>						
Htg. Sys. Replacement	64.0	66.6	70.3	68.1	66.3	-2.7%
High Eff Htg Sys Repl	58.7	62.7	66.8	60.2	62.7	4.2%
Std/Unspec Eff Htg Sys Repl	5.3	3.9	3.4	7.9	3.5	-55.1%
Htg. Sys. Tune and Clean	32.9	27.5	26.3	30.0	30.9	3.0%
Heating System Safety Check	13.1	15.2	9.3	0.1	#N/A	#N/A
Heating System Ventilation	24.4	43.4	52.9	59.1	63.9	8.0%
<i>Water Heater Measures</i>						
Pipe Wrap	76.6	86.3	86.9	89.7	88.9	-1.0%
Shower Head	22.5	19.6	14.9	14.7	13.2	-10.3%
Faucet Aerator	35.4	33.0	27.7	24.9	20.9	-15.9%
Water Heater Replacement	54.1	65.9	69.2	65.9	64.0	-2.9%
Hi-Eff Wtr Htr Repl.	50.2	64.5	69.2	65.9	64.0	-2.9%
Std-Eff Wtr Htr Repl.	3.8	1.5	-	-	-	-
Water Heater Ventilation	29.8	31.5	39.8	50.9	51.5	1.2%
Water Heater Repair	7.7	5.4	6.5	9.4	9.5	1.1%
<i>Lighting Measures</i>						
Efficient Lighting	82.9	81.6	75.6	70.4	68.0	-3.3%
<i>Refrigeration Measures</i>						
Refrigerator Removal	22.0	19.7	22.4	18.8	14.0	-25.5%
Refrigerator Exchange	0.1	0.1	0.1	0.3	0.3	-18.6%
Refrigerator Exchange	18.8	16.6	19.0	15.7	10.9	-30.6%
Freezer Removal	0.2	0.1	0.2	0.2	0.0	-100.0%
Freezer Exchange	4.4	4.4	5.3	4.2	3.9	-7.9%
<i>Health and Safety (other than heating & water heating measures listed above)</i>						
CO Detector	84.4	85.2	90.9	93.9	91.9	-2.1%
Smoke Detector	59.8	61.2	65.3	68.4	61.5	-10.1%
Exhaust Ventilation	82.4	84.5	89.3	89.8	87.9	-2.1%
Fuses	0.5	0.9	0.7	0.8	0.4	-45.8%
<i>Repairs</i>	87.3	88.1	87.9	92.3	93.3	1.2%

Table 1.15 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 1.15 Average Measure Costs

Measure	2014	2015	2016	2017	2018	Recent Year Change (%)
<i>Insulation and Infiltration Reduction Measures</i>						
Wall Insulation	1,753	1,803	1,904	1,827	1,870	2.3%
Ceiling/Attic Insulation	1,247	1,264	1,352	1,287	1,413	9.9%
Infiltration Reduction	641	676	824	840	917	9.1%
Floor/Crawlspace Insulation	674	677	759	643	622	-3.3%
Bandjoist Insulation	203	223	238	208	215	3.4%
<i>Heating System Measures</i>						
Htg. Sys. Replacement						
Condensing Htg Sys Repl	2,858	3,001	2,957	2,868	3,013	5.0%
Non-Cond Htg Sys Repl	2,145	2,189	2,611	1,830	2,370	29.5%
Htg. Sys. Tune and Clean	219	186	214	201	238	18.3%
Heating System Safety Check	138	145	149	85	#N/A	#N/A
Heating System Ventilation	236	236	232	209	234	11.7%
<i>Water Heater Measures</i>						
Pipe Wrap	12	14	15	14	16	12.4%
Shower Head	10	9	9	9	10	7.3%
Faucet Aerator	6	6	6	6	7	19.9%
Water Heater Replacement						
Hi-Eff Wtr Htr Repl.	1,448	1,569	1,561	1,559	1,645	5.5%
Std-Eff Wtr Htr Repl.	1,638	1,426	-	-	-	-
Water Heater Ventilation	237	188	175	157	178	13.8%
Water Heater Repair	115	122	130	120	89	-25.6%
<i>Lighting Measures</i>						
Efficient Lighting (avg spent per home)	63	59	53	53	57	7.6%
<i>Refrigeration Measures</i>						
Refrigerator Removal	20	28	58	25	55	118.4%
Refrigerator Exchange	688	782	759	760	743	-2.2%
Freezer Removal	23	25	30	27	-	-100.0%
Freezer Exchange	463	527	453	468	503	7.5%
<i>Health and Safety (other than heating & water heating measures listed above)</i>						
CO Detector	57	62	66	72	75	4.9%
Smoke Detector	52	59	54	58	60	2.2%
Exhaust Ventilation	734	830	881	887	894	0.8%
Fuses	103	82	128	113	134	18.7%
Repairs	668	589	723	715	780	9.0%
Support	3,106	3,452	3,755	3,677	3,932	6.9%

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

SAVINGS OF WATER HEATER, LIGHTING, AND REFRIGERATION MEASURES

Table 1.16 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 \$40 for these measures. The highest average bill savings were attained by North Iowa (\$94) and Siouxland (\$92) per unit. Matura, Northeast Iowa, and Threshold each averaged less than \$30 per unit.

Table 1.16 Installation Rates and Savings of Baseload Measures

Agency	Water Heating			Lighting	Refrigeration				Average First Year Bill Savings
	Pipe Wrap	Eff Shower-head	Eff Faucet Aerator	Efficient Lighting	Exchange Refrig	Exchange Freezer	Remove Refrig	Remove Freezer	
New Opp	54%	19%	48%	73%	2%	4%	0%	0%	\$34.46
HACAP	99%	0%	0%	77%	19%	10%	1%	0%	\$48.18
Eastern IA	92%	13%	25%	67%	13%	5%	0%	0%	\$45.92
Matura	55%	0%	0%	24%	14%	3%	0%	0%	\$14.92
MICA	43%	6%	2%	42%	15%	2%	2%	0%	\$31.31
Mid-Sioux	97%	3%	20%	86%	20%	6%	0%	0%	\$66.04
North Iowa	100%	22%	50%	89%	22%	17%	6%	0%	\$93.68
NE Iowa	92%	14%	0%	38%	7%	0%	1%	0%	\$14.04
New View	84%	0%	0%	87%	10%	5%	0%	0%	\$39.29
Threshold	91%	16%	4%	58%	1%	1%	0%	0%	\$18.03
IMPACT	83%	3%	0%	60%	17%	0%	0%	0%	\$29.13
SCICAP	67%	38%	33%	62%	10%	14%	0%	0%	\$38.80
SE Iowa	100%	0%	0%	67%	7%	3%	0%	0%	\$39.13
SIEDA	91%	11%	22%	67%	1%	4%	0%	0%	\$45.94
Upper Des Moines	100%	0%	0%	93%	16%	1%	0%	0%	\$67.38
West Central	98%	35%	53%	83%	3%	0%	0%	0%	\$56.47
CAA Siouxland	100%	31%	3%	93%	24%	10%	0%	0%	\$92.31
Polk County	98%	32%	73%	73%	11%	2%	0%	0%	\$29.52
State	89%	13%	21%	68%	11%	4%	0%	0%	\$39.79

* First-year household bill savings are averages of total water heater, and lighting for units receiving the measures

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.

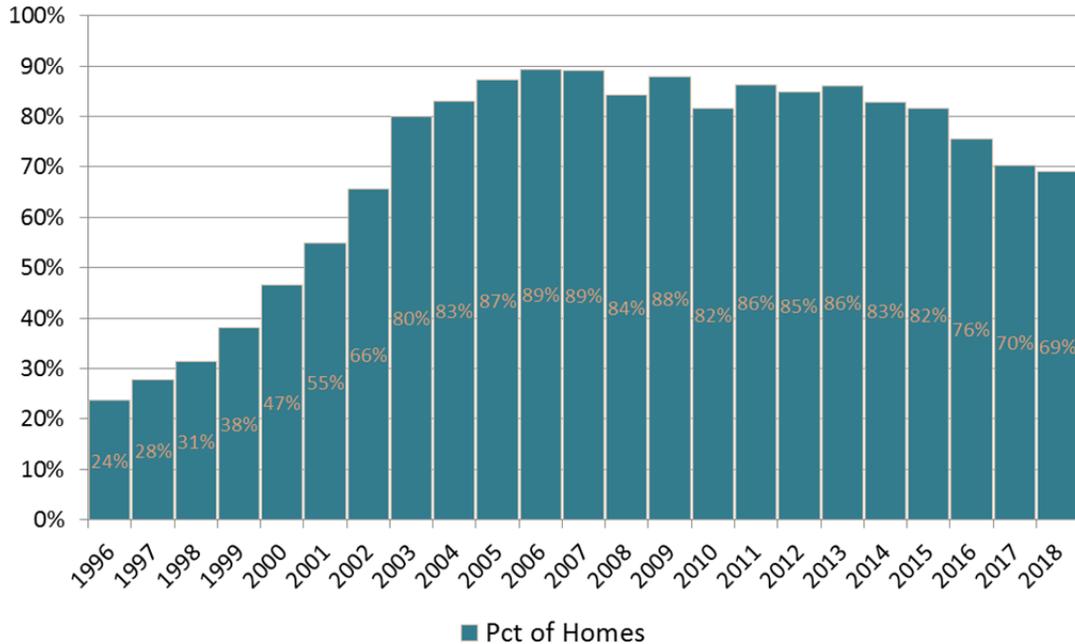


Figure 1.15 Percentage of Housing Units Receiving Lighting Measures

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 five years as more units already have efficient lighting installed. In 2018, 69% of units received lighting from the program.

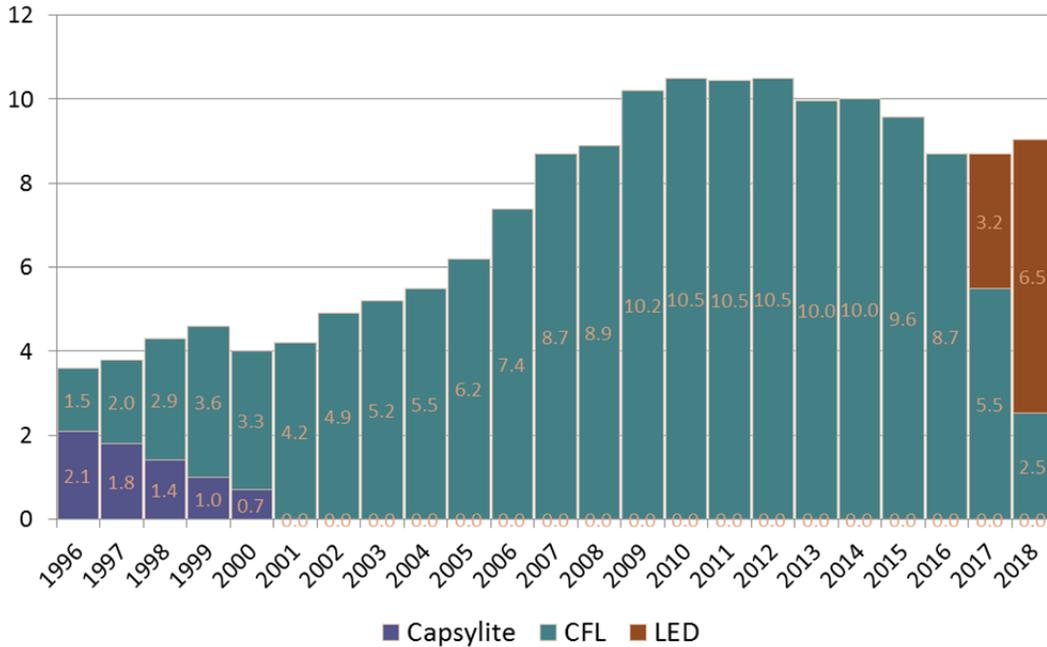


Figure 1.16 Average Number of Bulbs Installed for Housing Units Receiving Lighting Measures

The average number of bulbs installed in dwellings that received at least one lighting measure averaged 9 bulbs per house 2018. Agencies began installing LEDs in 2017: 72% lighting measures installed in 2018 were LEDs (Figure 1.16).

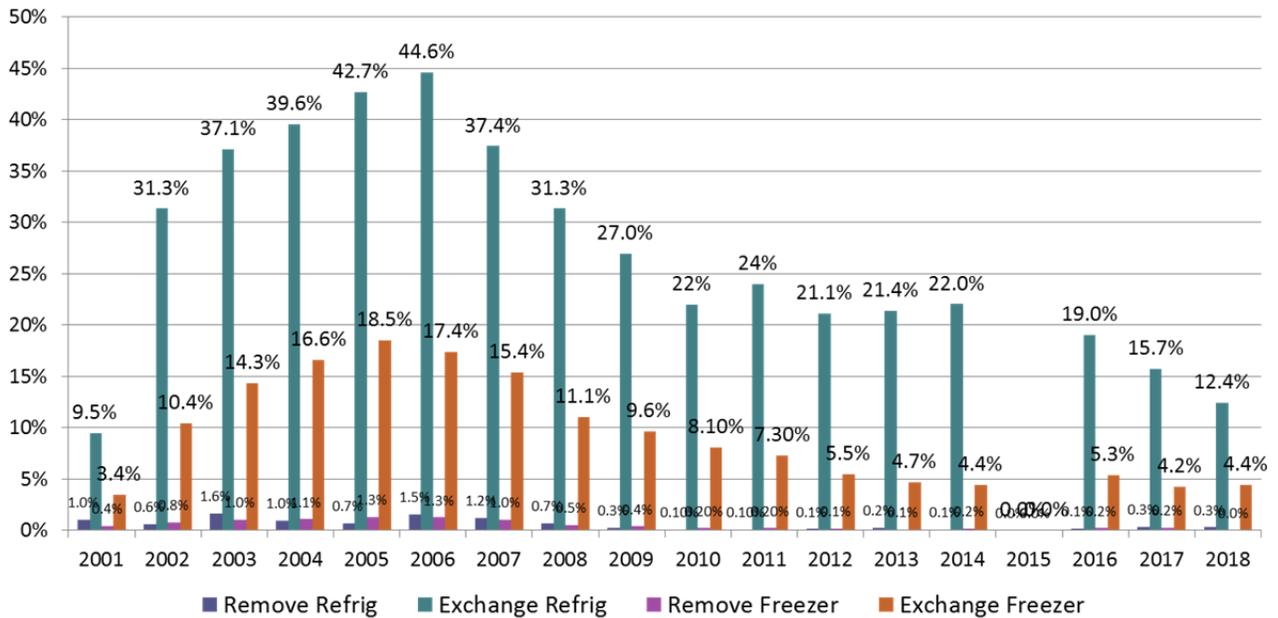


Figure 1.17 Installation Rates of Refrigeration Measures

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 (12.4%) since the program began ramping up in 2001.

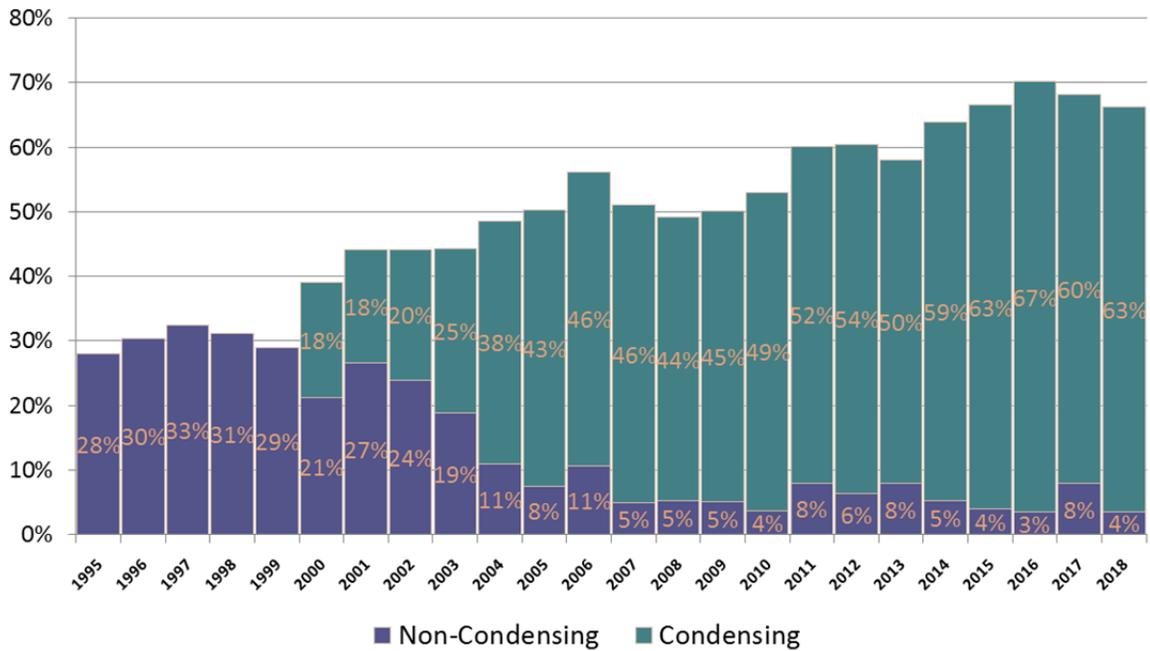


Figure 1.18 Installation Rates of Natural Gas Heating System Replacements

Figure 1.18 shows the transition to condensing (90+ efficiency) furnaces from non-condensing (80% efficiency) heating systems. Overall, 67% of dwellings with natural gas heating received a heating system replacement during 2018, with the vast majority of these being condensing units (63%).

Thirty percent of the heating systems that were replaced were done so for health and safety; the remaining units were replaced for efficiency.

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

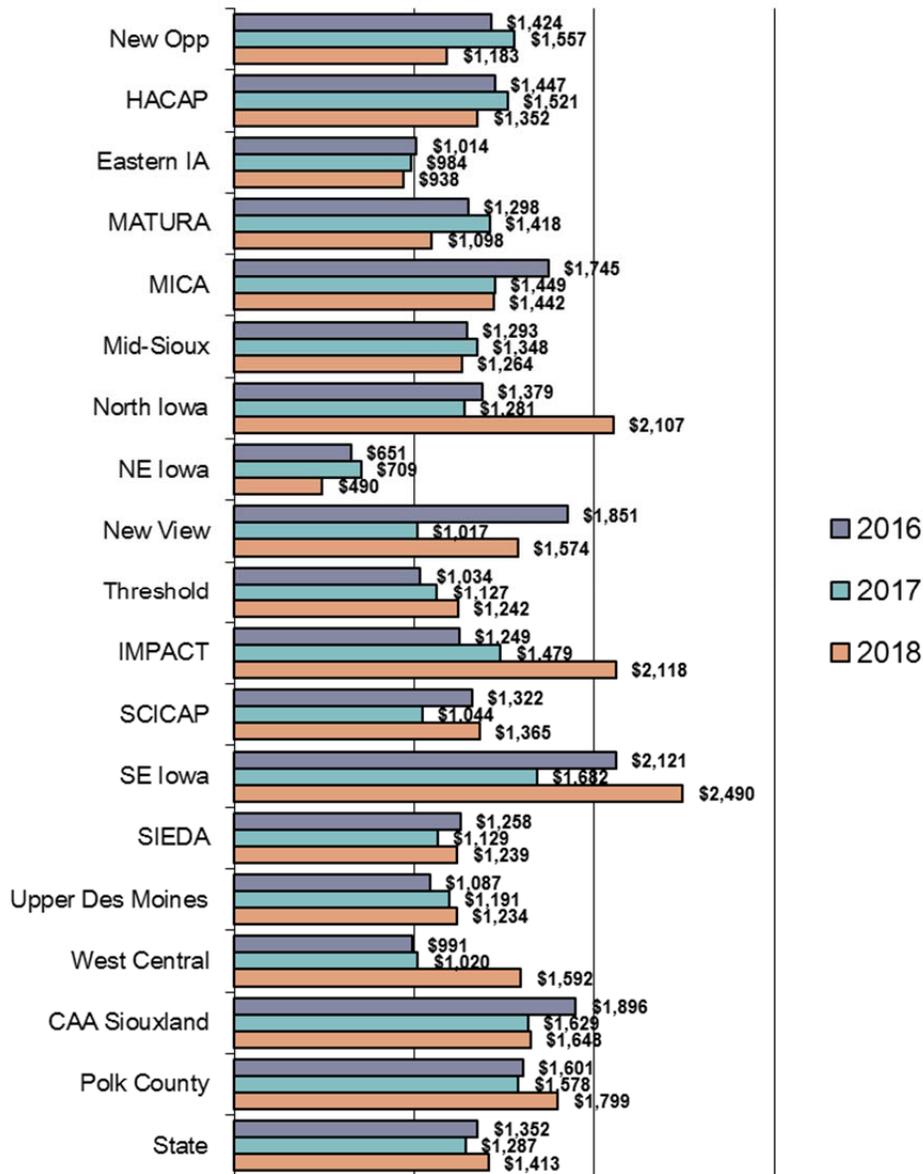


Figure 1.19a Average Program Expenditures on Ceiling Insulation by Agency

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 \$1,413 in 2018.

SE Iowa, IMPACT, and North Iowa averaged more than \$2,000 per dwelling unit that received ceiling and attic insulation. The lowest average spending was reported by Northeast Iowa, averaging \$490.

Figure 1.19b shows that for units receiving utility funding for this measure, the statewide average expenditure of utility funds on ceiling and attic insulation was \$1,230. SE Iowa and IMPACT spent more than \$2,000. Northeast Iowa spent the least utility funds (\$380) for ceiling and attic insulation.

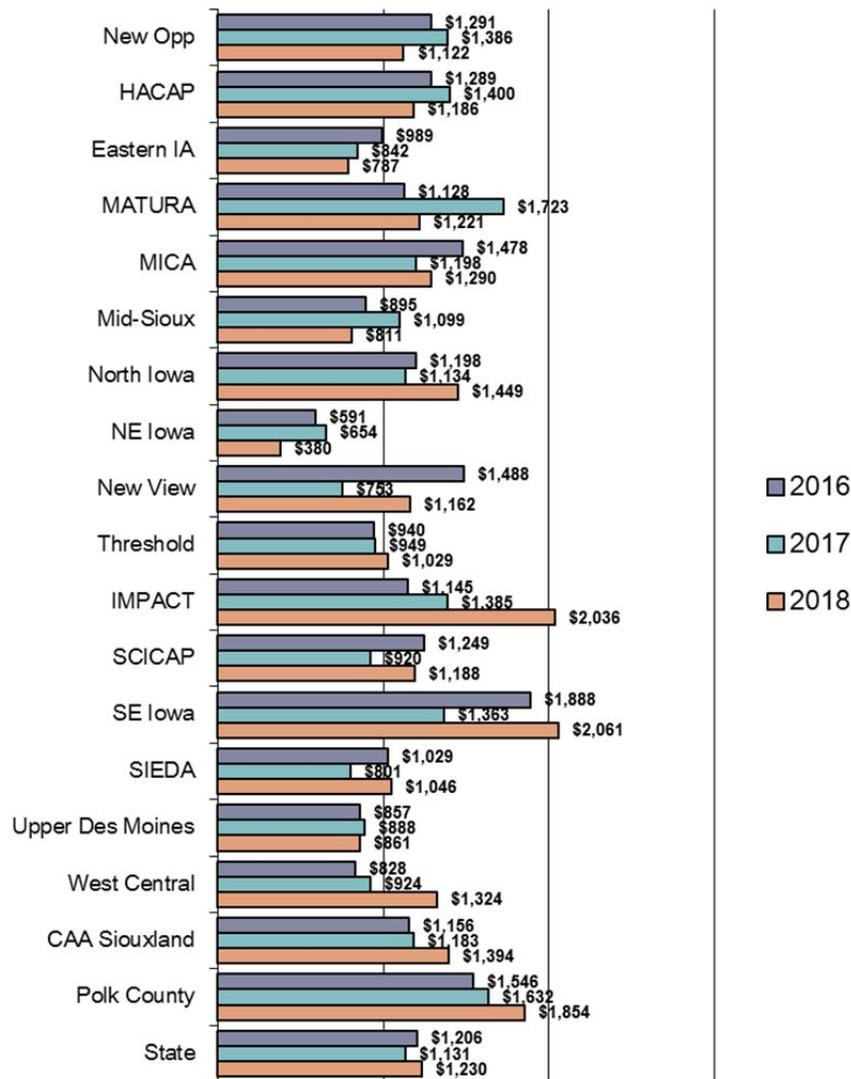


Figure 1.19b Average Utility Expenditures on Ceiling Insulation by Agency

WALL INSULATION EXPENDITURES

Figure 1.20a shows the average installed costs for wall insulation for all funding. The state average expenditure for wall insulation was \$1,870 in CY 2018. SCICAP, MICA, West Central, and HACAP each averaged more than \$2,500. Northeast Iowa spent the least, averaging \$565 per dwelling unit.

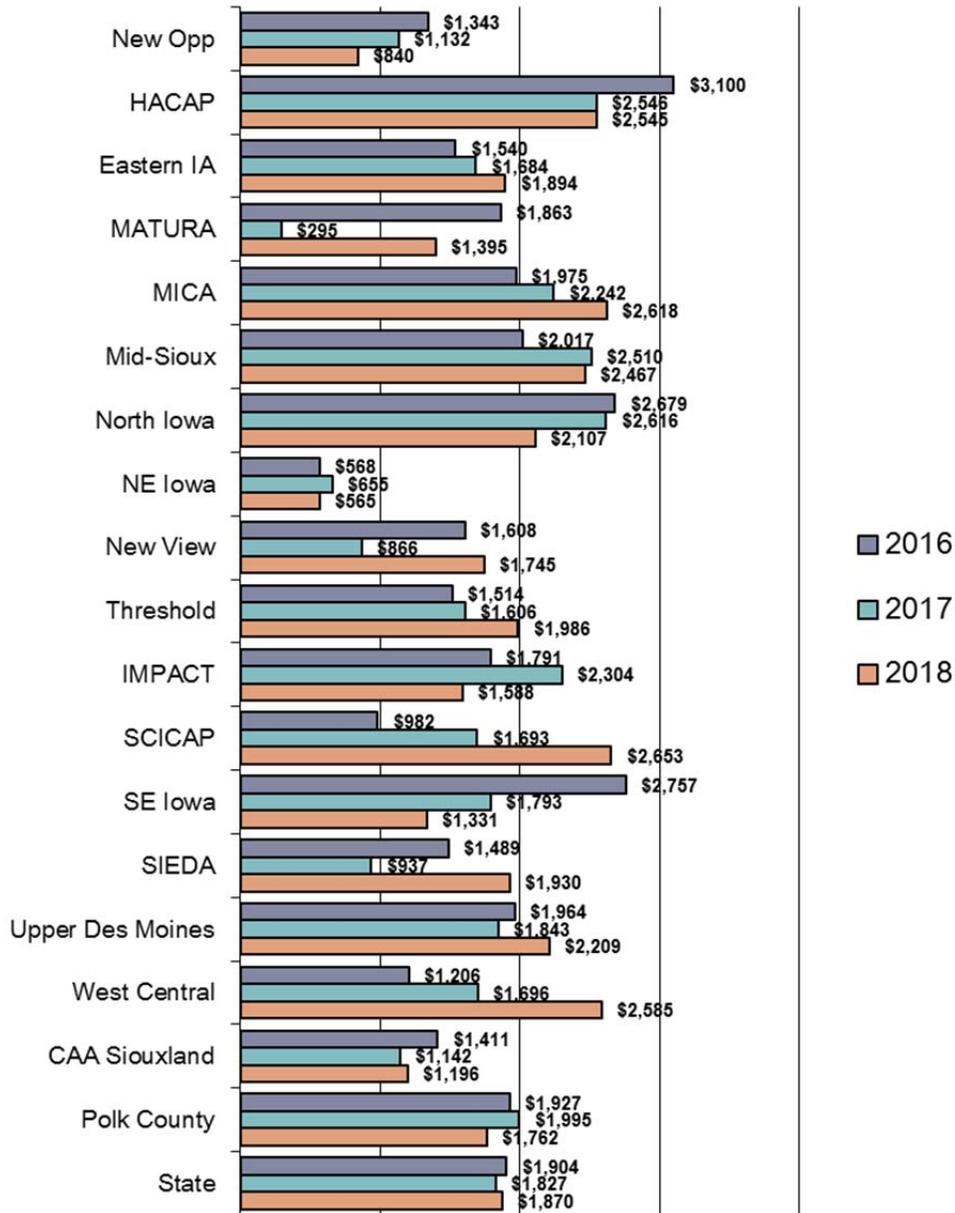


Figure 1.20a Average Program Expenditures on Wall Insulation by Agency

Figure 1.20b provides agency expenditures for utility-funded wall insulation. Statewide, the average expenditures for utility-funded wall insulation averaged \$1,701 in CY 2018. SCICAP, HACAP, MICA, and Mid-Sioux spent the most utility funds, averaging over \$2,000; Northeast Iowa spent the least (\$386).

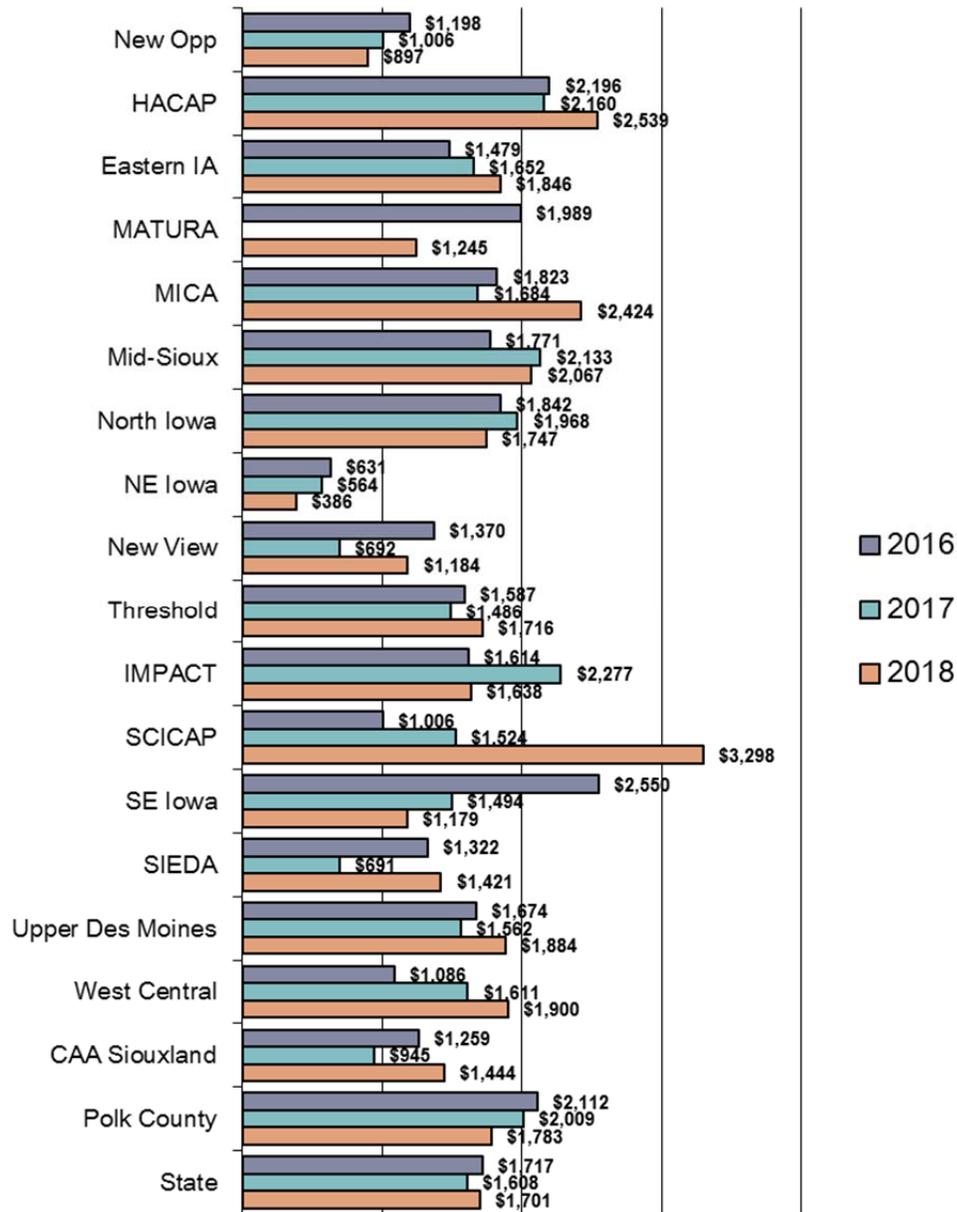


Figure 1.20b Average Utility Expenditures on Wall Insulation by Agency

FLOOR/CRAWLSPACE INSULATION

Figure 1.21a shows the average expenditures for floor/crawlspace insulation from all funding sources. Statewide, the cost for floor/crawlspace insulation averaged \$622. New View and SCICAP spent the most, averaging over \$1,000 per unit, while North Iowa the least, at \$234.

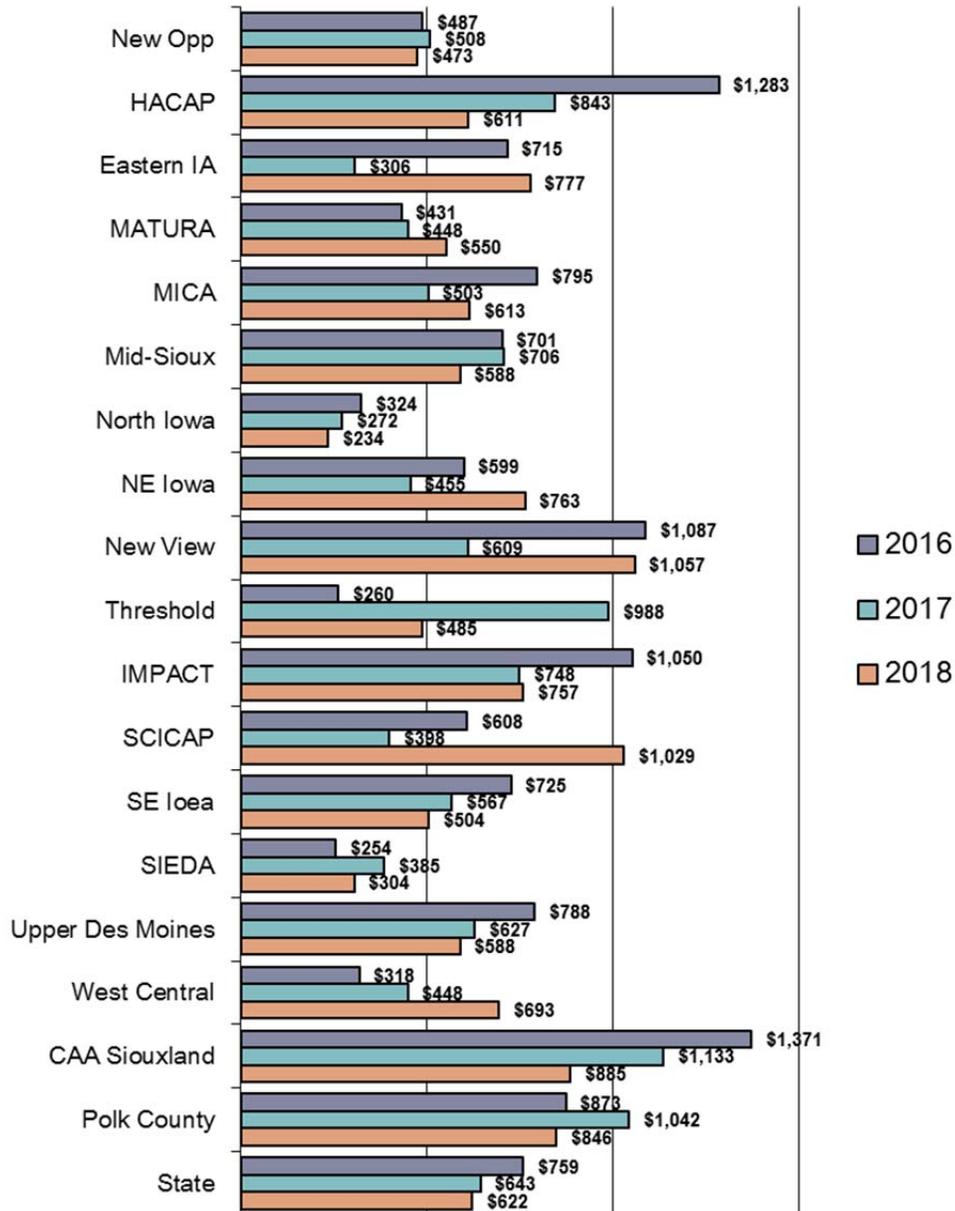


Figure 1.21a Average Program Expenditures on Floor/Crawlspace Insulation by Agency

The average expenditure of utility funds for floor/crawlspace insulation(Figure 1.21b) was \$614. Siouxland, SCICAP, and Polk County spent over \$900 while Threshold, SIEDA, and North Iowa spent less than \$400.

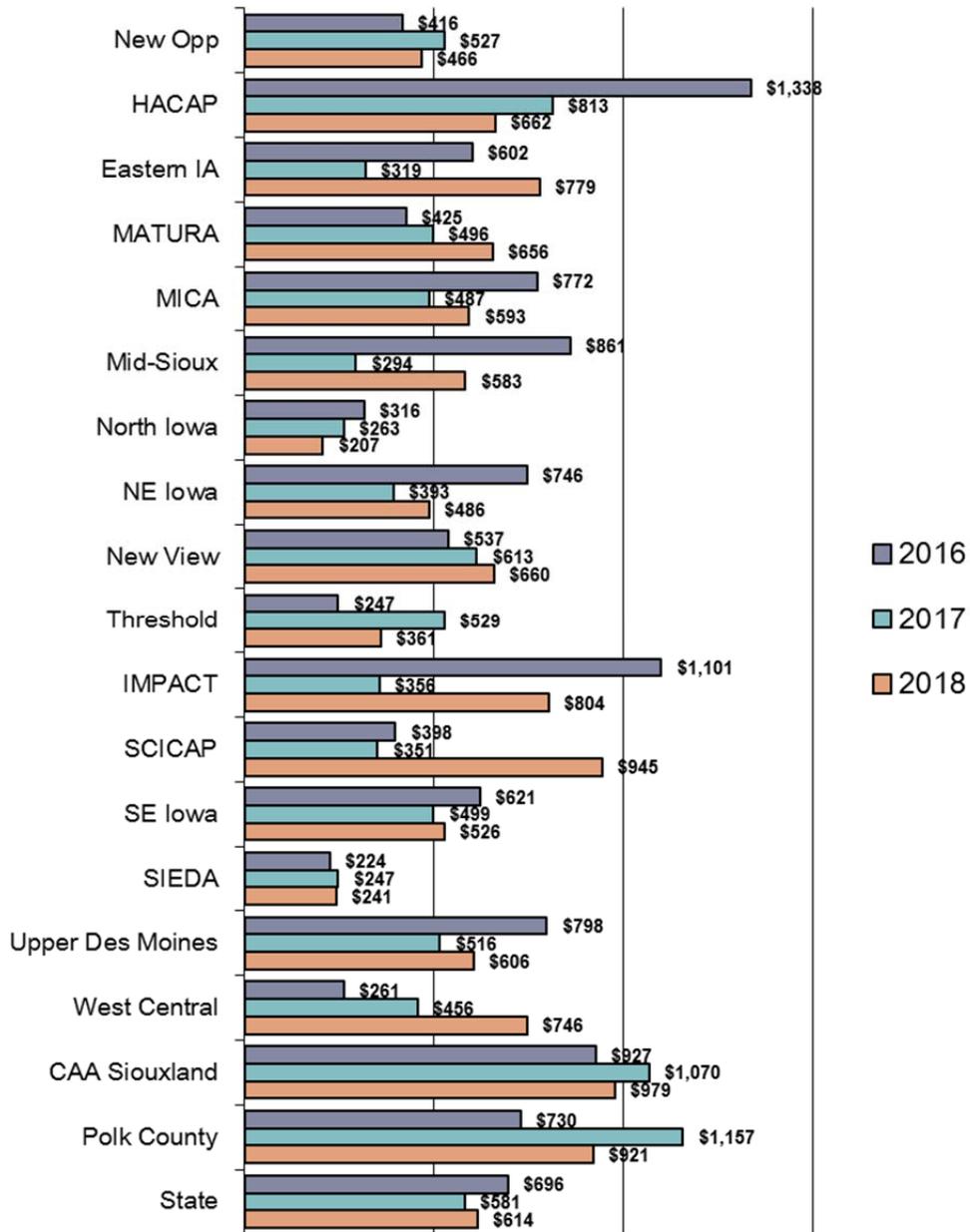


Figure 1.21b Average Utility Expenditures on Floor/Crawlspace Insulation by Agency

NON-ELECTRIC HEATING SYSTEM REPLACEMENT EXPENDITURES

Figure 1.22a shows the average expenditures for all non-electric heating system replacements from all funding sources. Statewide average heating system replacement costs were \$3,036 in 2018. Four agencies reported average expenditures exceeding \$4,000, including SCICAP (\$5,558), New View (\$4,367), Siouxland (\$4,340), and West Central (\$4,261). Three agencies averaged less than \$2,500, including Upper Des Moines (\$2,482), Threshold (\$2,390), and Polk County (\$2,166).

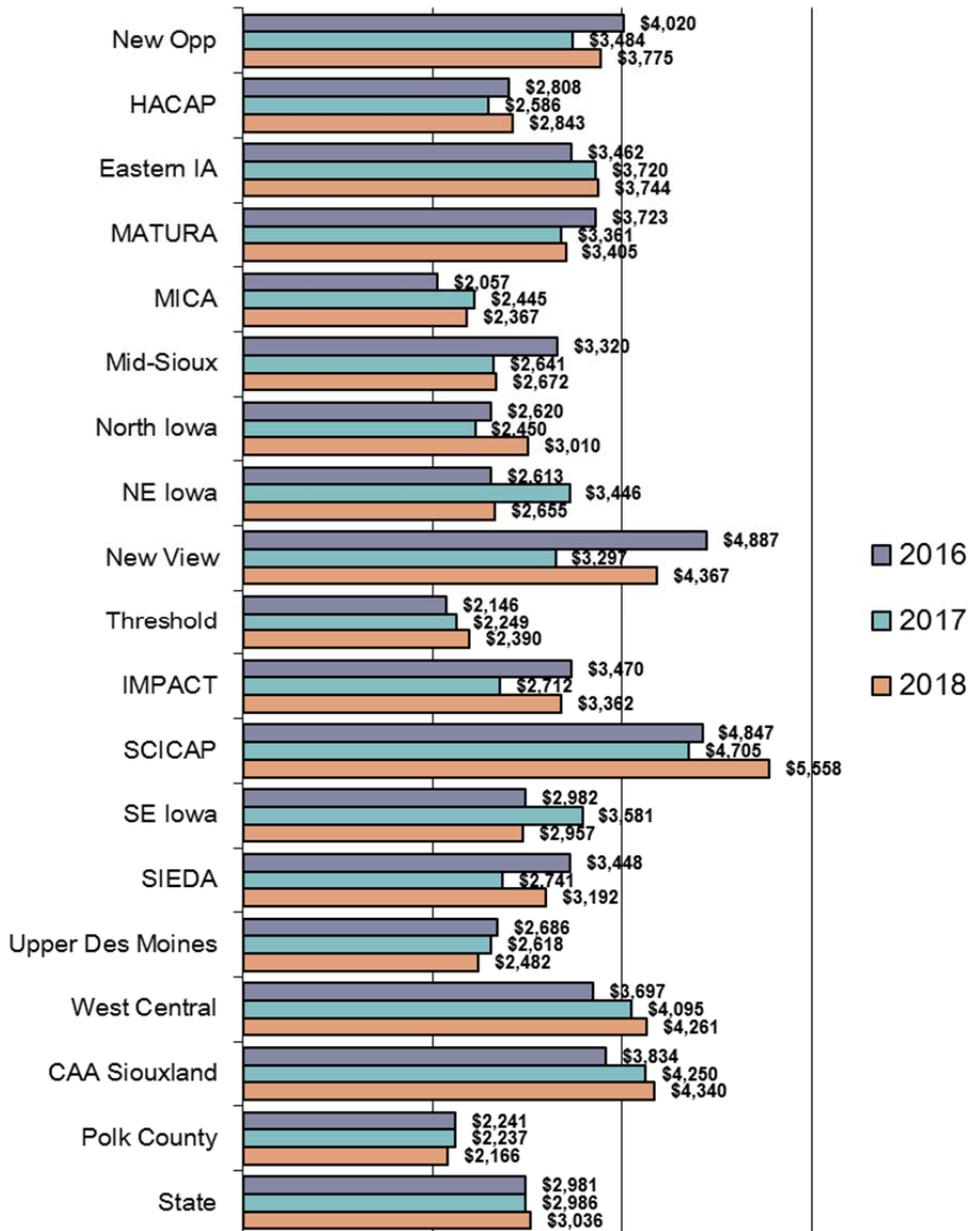


Figure 1.22a Average Program Expenditures on Heating System Replacements by Agency

Figure 1.22b shows the average utility funding for replacement heating systems of \$2,528 statewide. Siouxland and SCICAP spent more than \$3,000. Polk County spent the least, averaging \$1,904 per housing unit.

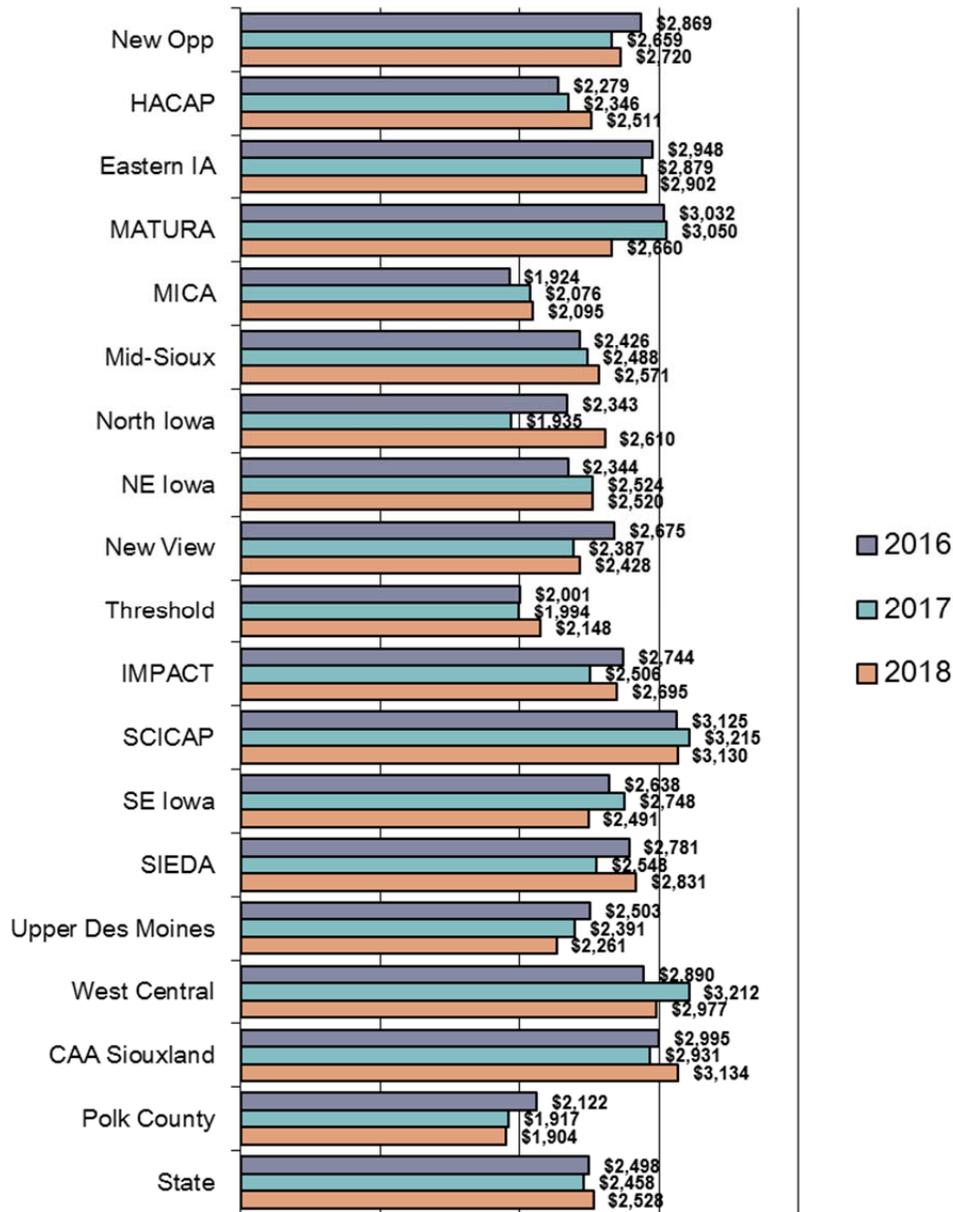


Figure 1.22b Average Utility Expenditures on Heating System Replacements by Agency

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 October 1, 2017 through September 1, 2018 comprised our treatment group gas treatment group. Jobs weatherized from July 1, 2017 through June 30, 2018 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, 2018 through March, 2019. 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).

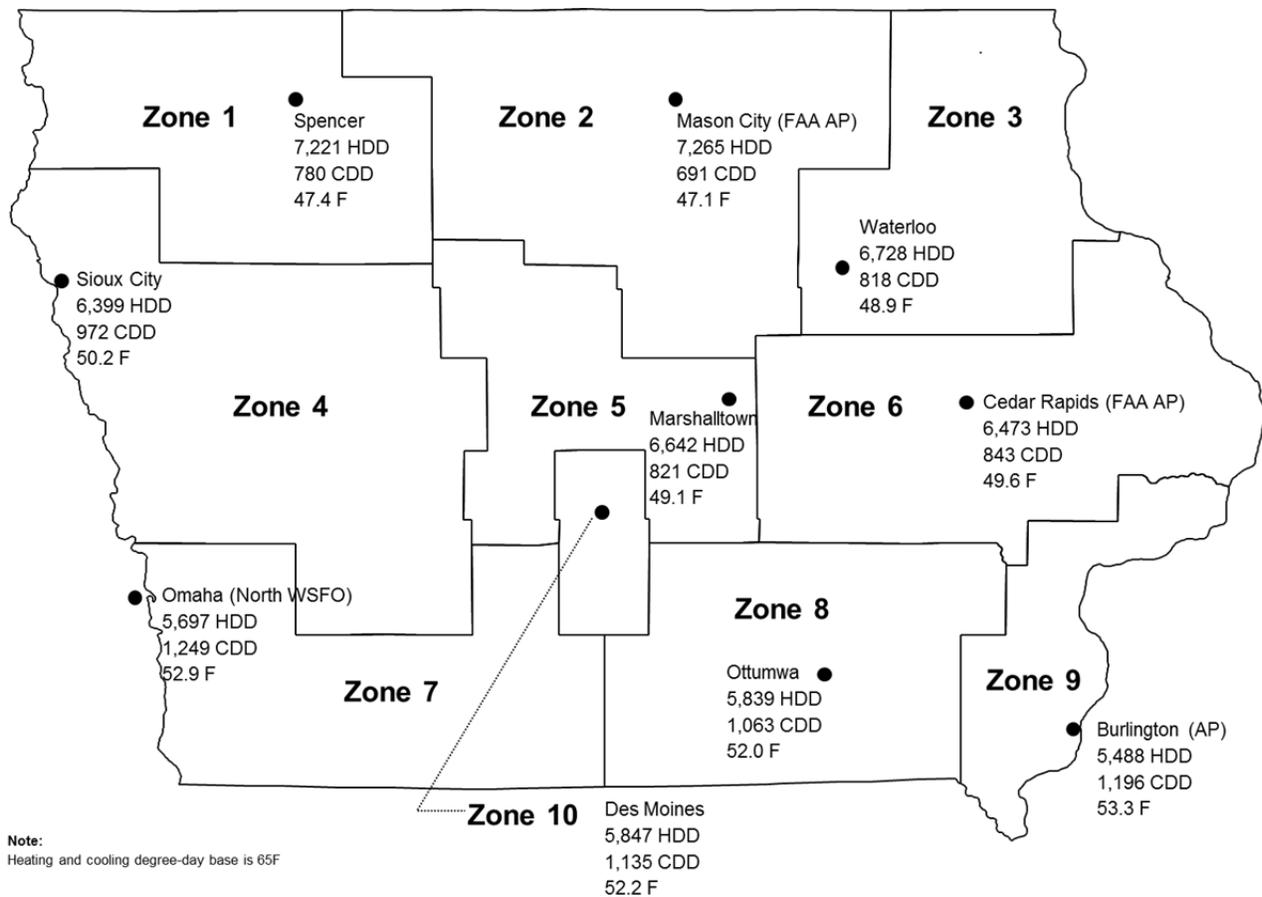


Figure 2.1 Weather zones used in the weather-normalization

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 990 weatherization client dwellings with gas heating and 55,573 LIHEAP client dwellings for our comparison group (also with gas heating).

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 75% of the treatment client dwellings and 73% 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 67% of the comparison group. Our final analytic dataset included 530 weatherization client dwellings and 27,477 comparison dwellings, representing 54% and 50% 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	990	55,573	371	15,279	156	8,513	463	31,781
	Returned	745	40,635	321	11,934	109	5,563	315	23,138
	Percentage Returned	75.3%	73.1%	86.5%	78.1%	69.9%	65.3%	68.0%	72.8%
Useable Histories	Both Pre and Pst Cnt	693	36,929	283	8,963	105	5,349	305	22,617
	Both Pre and Pst Pct	70.0%	66.5%	76.3%	58.7%	67.3%	62.8%	65.9%	71.2%
Passed Model Diagnostics	Both Pre and Pst Cnt	641	32,282	254	7,716	93	4,715	294	19,851
	Both Pre and Pst Pct	64.7%	58.1%	68.5%	50.5%	59.6%	55.4%	63.5%	62.5%
Passed Reliability Screens	Both Pre and Pst Cnt	530	27,477	206	6,635	81	3,987	243	16,855
	Both Pre and Pst Pct	53.5%	49.4%	55.5%	43.4%	51.9%	46.8%	52.5%	53.0%

Table 2.2 provides the attrition analysis broken out by housing type. Overall, 56% of the requested account data for weatherized single family site-built dwellings, 42% of mobile homes, and 18% 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	860	37,457	334	11,210	139	5,904	387	20,343	
Returned	670	29,279	301	9,332	98	4,034	271	15,913	
Percentage Returned	77.9%	78.2%	90.1%	83.2%	70.5%	68.3%	70.0%	78.2%	
Passed Model	Both Pre and Pst Cnt	577	24,251	239	6,283	85	3,593	253	14,375
Diagnostics	Both Pre and Pst Pct	67.1%	64.7%	71.6%	56.0%	61.2%	60.9%	65.4%	70.7%
Passed Reliability	Both Pre and Pst Cnt	484	20,506	192	5,423	75	3,026	217	12,057
Screens	Both Pre and Pst Pct	56.3%	54.7%	57.5%	48.4%	54.0%	51.3%	56.1%	59.3%
Mobile Homes									
Requested		92	5,089	18	1,344	10	948	64	2,797
Returned		61	3,766	15	1,069	8	580	38	2,117
Percentage Returned		66.3%	74.0%	83.3%	79.5%	80.0%	61.2%	59.4%	75.7%
Passed Model	Both Pre and Pst Cnt	55	2,980	12	664	7	477	36	1,839
Diagnostics	Both Pre and Pst Pct	59.8%	58.6%	66.7%	49.4%	70.0%	50.3%	56.3%	65.7%
Passed Reliability	Both Pre and Pst Cnt	39	2,485	11	551	5	380	23	1,554
Screens	Both Pre and Pst Pct	42.4%	48.8%	61.1%	41.0%	50.0%	40.1%	35.9%	55.6%
Multi-Family									
Requested		38	6,805	19	1,607	7	997	12	4,201
Returned		14	4,347	5	920	3	567	6	2,860
Percentage Returned		36.8%	63.9%	26.3%	57.2%	42.9%	56.9%	50.0%	68.1%
Passed Model	Both Pre and Pst Cnt	9	3,063	3	469	1	394	5	2,200
Diagnostics	Both Pre and Pst Pct	23.7%	45.0%	15.8%	29.2%	14.3%	39.5%	41.7%	52.4%
Passed Reliability	Both Pre and Pst Cnt	7	2,699	3	393	1	355	3	1,951
Screens	Both Pre and Pst Pct	18.4%	39.7%	15.8%	24.5%	14.3%	35.6%	25.0%	46.4%

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 2% of treatment group observations and 6% of comparison group cases with reliable 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 of those results are the net savings by agency, including average savings and percentage savings.

The overall adjusted savings (reported under the Net Savings column) averaged 241 therms for single family site-built dwellings. The 90% confidence interval was 33 therms, which is suggestive that 90% certain that the true population mean savings falls in the approximate range of 208 and 274 therms. The overall mean percent savings was 23.7%, with a 2.8% confidence interval.

Net gas savings for mobile homes averaged 173 therms \pm 87 therms. The overall percentage savings for mobile homes was 21.5%, with a 9.1% 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			
		n	Baseline Cons. (therms)	90% CI	Savings (therms)	90% CI	n	Baseline Cons. (therms)	90% CI	Savings (therms)	90% CI	Savings (therms)	90% CI	Percent Savings (%)	90% CI
Single Family Detached Framed Dwelling Results															
New Opportunities	41	22	1,180	142	326	199	440	1,129	23	52	33	277	198	23.4%	15.4%
HACAP	84	47	964	62	255	82	1,507	968	11	27	15	229	82	23.7%	7.6%
Eastern IA	73	47	1,083	98	281	118	1,713	1,076	16	22	22	260	118	24.0%	9.3%
MATURA	14	7	905	26	245	246	157	899	35	23	50	221	249	24.5%	22.8%
MICA	55	35	934	120	322	133	905	932	23	36	31	286	133	30.6%	11.0%
Mid-Sioux	33	8	1,166	89	301	164	62	1,171	31	72	49	230	170	19.7%	14.4%
North Iowa	34	12	788	77	200	113	775	792	9	18	13	182	113	23.1%	13.1%
NE Iowa	80	38	869	68	101	88	627	867	16	23	23	77	90	8.9%	10.0%
New View	34	13	1,249	161	389	202	383	1,252	27	26	40	363	204	29.1%	13.7%
Threshold	63	25	1,022	84	238	111	622	1,012	16	10	23	228	113	22.3%	9.7%
IMPACT	27	13	1,224	219	303	262	1,727	1,214	17	69	23	234	254	19.1%	18.8%
SCICAP	11	8	925	200	117	280	130	925	44	14	62	103	287	11.2%	29.6%
SE Iowa	45	22	1,168	128	413	161	354	1,135	27	48	38	368	162	31.5%	11.5%
SIEDA	44	31	775	98	173	128	918	782	18	10	25	163	130	21.1%	14.8%
Upper Des Moines	57	34	982	101	205	121	1,278	975	16	-5	23	211	124	21.5%	10.6%
West Central	32	12	791	136	224	166	785	791	15	4	21	220	167	27.8%	17.3%
CAA Siouxland	24	15	1,133	166	311	227	780	1,138	21	44	29	268	225	23.6%	18.1%
Polk County	146	84	1,103	57	327	70	114	1,063	39	63	55	267	88	24.2%	6.7%
Overall	897	473	1,016	26	267	33	18,931	1,014	4	26	6	241	33	23.7%	2.8%
Mobile Home Results (entire state)															
Overall	94	35	833	72	190	87	2,219	824	9	17	12	173	87	21.5%	9.1%

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'.

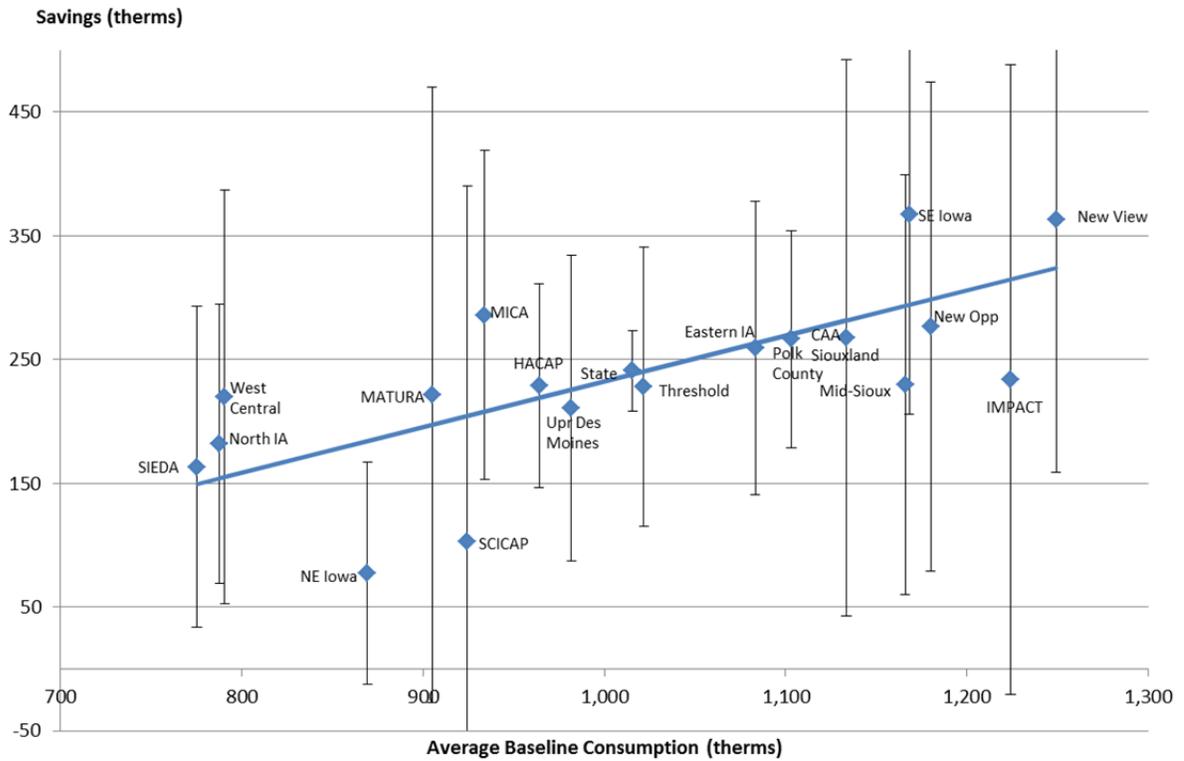


Figure 2.2 Savings in relation to the pre-weatherization normalized annual consumption (single family site-built dwellings).

The 90% confidence intervals are extremely wide for several agencies, including MATURA, SCICAP, and IMPACT. 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.

An agency in which the upper bound of the confidence intervals falls below the lower range of the state is underperforming. One agency, New View, fell into this range. 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, an agency in which the lower bound of the confidence interval is higher than the upper bound of the state range would be over-performing. No agencies achieved this.

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.

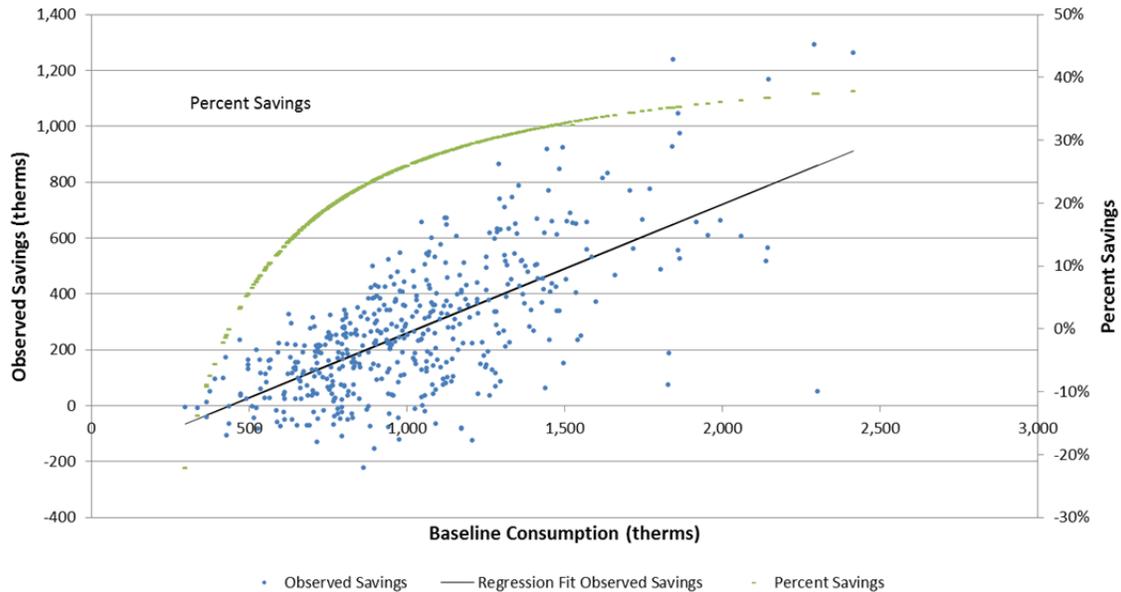


Figure 2.3. Relationship between baseline consumption, savings, and percentage savings

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 1,016 therms in CY 2018. Generally speaking, net savings have been flat since 2010. Overall percentage savings has declined in the past two years but remains within the range seen over the past twenty years.

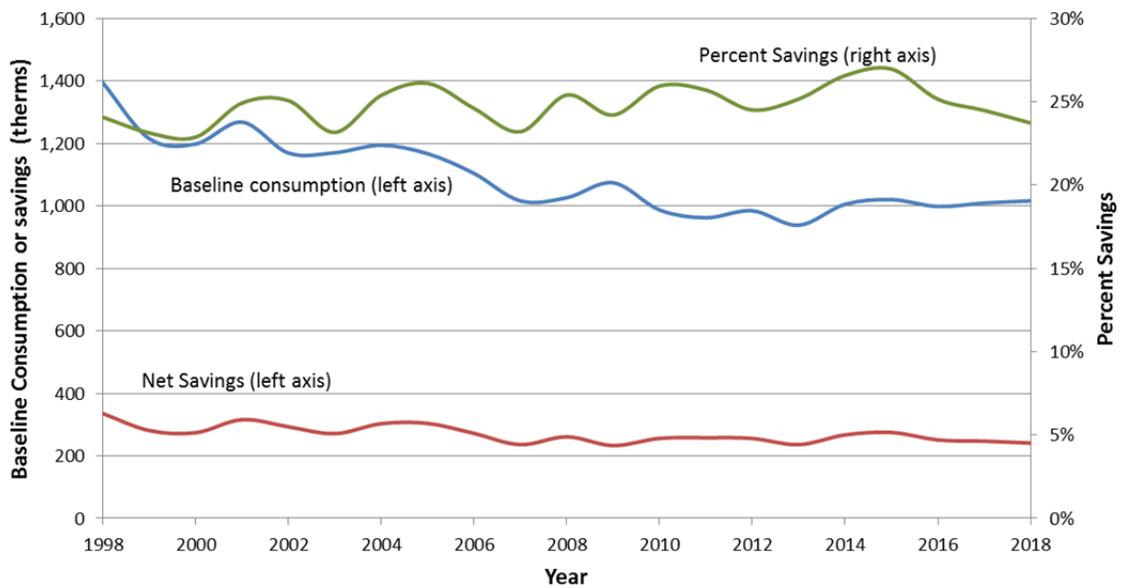


Figure 2.4 Annual Baseline Consumption, Savings, and Percentage Savings

ATTRITION ANALYSIS – ELECTRICITY

We requested data for 987 weatherization client dwellings and 70,279 LIHEAP client dwellings for our comparison group. The electricity analysis was restricted to home weatherized from July, 2017 through June, 2018 to allow for up to a year of pre and post-weatherization periods.

Overall we had 472 treatment and 29,681 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	987	70,279	524	32,721	463	37,537
	Returned	767	54,095	453	25,321	314	28,764
	Percentage Returned	77.7%	77.0%	86.5%	77.4%	67.8%	76.6%
Useable Histories	Both Pre and Pst Cnt	647	44,093	352	16,239	295	27,842
	Both Pre and Pst Pct	65.6%	62.7%	67.2%	49.6%	63.7%	74.2%
Passed Model	Both Pre and Pst Cnt	554	35,789	300	14,190	254	21,593
	Both Pre and Pst Pct	56.1%	50.9%	57.3%	43.4%	54.9%	57.5%
Passed Reliability	Both Pre and Pst Cnt	472	29,681	265	12,581	207	17,094
	Both Pre and Pst Pct	47.8%	42.2%	50.6%	38.4%	44.7%	45.5%

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 429 cases. Thirty-five mobile homes and eight 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		862	41,231	463	19,896	399	21,320
Returned		689	33,593	415	16,551	274	17,035
Percentage Returned		79.9%	81.5%	89.6%	83.2%	68.7%	79.9%
Passed Model	Both Pre and Pst Cnt	500	23,309	276	9,859	224	13,448
Diagnosics	Both Pre and Pst Pct	58.0%	56.5%	59.6%	49.6%	56.1%	63.1%
Passed Reliability	Both Pre and Pst Cnt	429	19,630	246	8,789	183	10,839
Screens	Both Pre and Pst Pct	49.8%	47.6%	53.1%	44.2%	45.9%	50.8%
Mobile Homes							
Requested		92	5,254	42	2,663	50	2,590
Returned		65	4,012	33	2,098	32	1,913
Percentage Returned		70.7%	76.4%	78.6%	78.8%	64.0%	73.9%
Passed Model	Both Pre and Pst Cnt	46	2,693	23	1,220	23	1,470
Diagnosics	Both Pre and Pst Pct	50.0%	51.3%	54.8%	45.8%	46.0%	56.8%
Passed Reliability	Both Pre and Pst Cnt	35	2,224	18	1,079	17	1,142
Screens	Both Pre and Pst Pct	38.0%	42.3%	42.9%	40.5%	34.0%	44.1%
Multi-Family							
Requested		33	10,299	19	5,205	14	5,090
Returned		13	7,036	5	3,355	8	3,680
Percentage Returned		39.4%	68.3%	26.3%	64.5%	57.1%	72.3%
Passed Model	Both Pre and Pst Cnt	8	4,084	1	1,552	7	2,532
Diagnosics	Both Pre and Pst Pct	24.2%	39.7%	5.3%	29.8%	50.0%	49.7%
Passed Reliability	Both Pre and Pst Cnt	8	3,326	1	1,361	7	1,965
Screens	Both Pre and Pst Pct	24.2%	32.3%	5.3%	26.1%	50.0%	38.6%

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 4% of treatment group observations and 6% 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	
	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
Electric Savings for Dwellings with Non-Electric Space Heat															
Overall	1,124	416	10,713	497	732	669	21,656	10,737	71	91	101	645	678	6.0%	6.6%
Electric Savings for Dwellings with Electric Space Heat															
Overall	72	24	24,606	4,002	1,362	5,221	3,514	24,319	344	543	477	833	5,204	3.4%	20.9%

Dwellings with non-electric space heat averaged 645 kWh net savings from lighting, refrigerators and freezers, water heating, and cooling measures. The average net savings for dwellings with electric heat averaged 833 kWh per dwelling, with a wide 90% confidence range of 5,205 kWh.

COMPARISON OF POPULATION AND SAMPLE ENERGY USAGE

Table 2.8 provides the adjustment factors that were applied to estimated savings for each dwelling weatherized by the program. The adjustment factor for natural gas was also applied to dwellings heated by propane, fuel oil, and other non-electric fuels.

Table 2.8 Adjustment Factors Applied to Estimated Savings

	Estimated Savings	Observed Savings	Adjustment Factor
Electricity			
Dwellings with Non-Electric Space Heat	572	645	1.13
Dwellings with Electric Space Heat	2,198	833	0.38
Natural Gas Heat	263	235	0.89

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 2018**

Total Reported Labor, Materials and Utility Admin Expenditures: **\$15,922,964**
 Utility Administration Expenditures: **\$0**
 Total Labor and Material Expenditures: **\$15,922,964**

Measure	Number of Dwellings with Impacts						Number of Dwellings with kWh Impacts						Billing Adjusted First-Year Savings										Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures												
	Total	Electric	Gas	Propane	Fuel Oil		Season Cooling		Heating		Spending on Materials & Labor (\$)	Electricity		Annual kWh	Gas		Propane gallons	Fuel Oil gallons	Other Mbtu	Spending on Materials & Labor (\$)	Electricity		Annual kWh	Gas		Propane gallons	Fuel Oil gallons	Other Mbtu							
					Other	Other	Summer kW	Winter kW	Pk-Day therms	Annual therms		Summer kW	Winter kW		Pk-Day therms	Annual therms					Summer kWh	Winter kWh		Pk-Day therms	Annual therms										
Total Efficiency Measures	1,157	1,157	1,005	73	3	0	1,152	1,156		8,637,925	266.1	229.5	898,125	2,402	223,190	18,809	493	0	7,466	0.231	0.198	776	2.39	222	258	164	-								
Total Shell & Htg. Sys. Repl	1,156	1,156	1,005	73	3	0	1,139	1,152		7,239,226	227.6	257,898	168.0	255,069	512,968	2,358	214,118	18,474	493	0	6,262	0.200	0.146	221	444	2.35	213	253	164	-					
Total Shell Measures	1,156	1,156	1,005	73	3	0	1,139	1,152		4,853,020	227.6	257,898	165.8	251,843	509,741	1,419	128,785	11,176	278	0	4,198	0.200	0.144	219	441	1.41	128	153	93	-					
Wall Insul.	663	622	593	40	2	0	620	28		1,239,861	86.1	103,888	18.1	27,737	131,625	471	42,830	3,793	62	0	1,870	0.139	0.168	648	991	212	0.79	72	95	31	-				
Open Blown Ceiling Insul	900	858	780	60	2	0	856	58		772,815	78.9	95,156	45.0	68,444	163,600	377	34,123	3,219	68	0	859	0.092	0.111	0.776	1,180	191	0.48	44	54	34	-				
Cavity Fill Insul	351	296	319	15	1	0	292	16		321,297	16.8	20,300	8.3	12,474	32,774	199	18,029	1,053	111	0	915	0.058	0.070	0.518	780	111	0.62	57	70	111	-				
Sloped Attic Insul	323	291	280	27	0	0	289	16		170,427	17.0	20,528	10.6	16,068	36,597	120	10,932	1,184	0	0	528	0.059	0.071	0.684	1,004	126	0.43	39	44	-	-				
Kneewall Insul	246	211	222	13	1	0	209	10		95,205	4.6	5,545	1.4	2,049	7,594	38	3,469	238	8	0	387	0.022	0.027	0.136	205	36	0.17	16	18	8	-				
Infil. Reduction	1,146	1,083	997	73	3	0	1,079	73		1,050,911	17.4	20,987	7.9	12,009	32,996	177	16,078	1,215	33	0	917	0.016	0.019	0.109	165	30	0.18	16	17	11	-				
Found/Crawl Insul	465	159	418	37	1	0	149	31		301,463	9.1	10,948	5.2	7,739	18,687	61	5,520	567	6	0	622	0.061	0.073	0.116	250	118	0.15	13	15	6	-				
Bandjoist Insul	457	30	382	44	1	0	-	30		98,069	0.0	0	2.1	3,080	3,080	22	1,996	243	3	0	215	0.000	0.009	0.103	103	103	0.06	5	6	3	-				
Furnace Blower Fan ¹	1,079	1,068	1,003	73	3	0	-	1,068		0	0.0	0	91.0	138,429	138,429	(6)	(511)	(41)	(1)	0	0	0.000	0.008	0.130	130	(0.01)	(1)	(1)	(0)	-					
Exhaust Ventilator ²	798	798	690	51	3	0	798	798		802,972	-2.4	(19,454)	(23.8)	(36,187)	(55,641)	(40)	(3,681)	(297)	(12)	0	1,006	-0.003	(24)	(0.030)	(45)	(70)	(0.06)	(6)	(4)	-	-				
Total Heating System Repl	786	21	713	50	2	0	-	21		2,386,206	0.0	0	2.2	3,227	939	85,333	7,298	215	0	3,036	0.000	0.103	154	154	1.32	120	146	108	-						
Condensing Htg Sys Repl	726	0	678	46	2	0	-	-		2,187,309	0.0	0.0	0.0	0	908	82,502	7,008	215	0	3,013	-	-	-	-	1.34	122	152	108	-	-					
Non-Cond Htg Sys Repl	41	0	37	4	0	0	-	-		97,181	0.0	0.0	0.0	0	31	2,831	291	0	0	2,370	-	-	-	-	0.85	77	73	-	-	-					
Electric Htg Sys Repl	15	15	0	0	0	0	-	15		50,598	0.0	0.0	1.3	2,004	2,004	0	0	0	0	3,373	0.000	0.000	0.088	134	134	-	-	-	-	-					
Heat Pump Repl	7	7	0	0	0	0	-	7		51,117	0.0	0.0	0.8	1,223	1,223	0	0	0	0	7,302	0.000	0.000	0.119	175	175	-	-	-	-	-					
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	-	-	-	-	-	-	-	-	-	-					
Water Heating	Total	Electric	Gas	Propane	Fuel Oil		Number of Measures Installed by Fuel Type		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									
	Other	Other	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
Temp. Reduct.	1,110	280	803	27	0	0	2,337	484	1,801	52	0	0	0	0	0	0	0	1,237,003	0.0	0.5	33,619	44.4	9,071	335	0	0	1,114	0.000	0.002	120	0.055	11	12	-	-
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	0	0	0	0	0	0	0	0	0	
Pipe Insul.	1,028	262	742	24	0	0	1,029	262	743	24	0	0	0	0	16,720	0.0	0.0	11,317	6.4	2,230	79	0	0	0	0	16	0.000	0.000	43	0.01	3	3	-	-	
LF Showerhead	153	36	115	2	0	0	172	36	134	2	0	0	0	1,544	0.0	0.0	6,354	2.7	838	16	0	0	0	0	10	0.000	0.004	177	0.02	7	8	-	-		
Faucet Aerator	242	54	188	0	0	0	378	84	294	0	0	0	0	1,767	0.0	0.0	2,784	1.4	420	0	0	0	0	0	7	0.000	0.001	52	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	0	0	0	0	0	0	0	0		
Hi-Eff or Electric Wtr Htr Repl.	740	98	617	25	0	0	740	98	617	25	0	0	0	1,216,971	0.0	0.3	12,699	33.6	5,486	232	0	0	0	0	1,645	0.000	0.003	130	0.05	9	9	-	-		
Lighting	787	787					7,151	7,151		45,245	27.3	50.4	259,711	-	-	-	-	-	57	0.035	0.064	330	-	-	-	-	-	-	-	-	-	-	-		
Refrigerator/Freezer³	162	162					175	175		116,482	11.3	10.6	91,827	-	-	-	-	-	719	0.070	0.065	567	-	-	-	-	-	-	-	-	-	-	-		
Refrigerator Removal	3	3					3	3		164	0.2	0.2	1,548	-	-	-	-	-	55	0.063	0.059	516	-	-	-	-	-	-	-	-	-	-			
Refrigerator Exchange	126	126					127	127		93,673	8.1	7.5	65,545	-	-	-	-	-	743	0.064	0.060	520	-	-	-	-	-	-	-	-	-	-			
Freezer Removal	0	0					0	0		0	0.0	0.0	0	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-			
Freezer Exchange	45	45					45	45		22,615	3.0	2.8	24,733	-	-	-	-	-	503	0.068	0.063	550	-	-	-	-	-	-	-	-	-	-			
Total Non-Efficiency Measures	1,157									7,285,039									6,296																
Misc Ins_Atlic Access/Ven	997									297,675										299															
Duct Sealing	351									77,557										221															
Duct Insulation	578									78,491										136															
Damming Material	612									47,614										78															
Htg. Sys. Tune & Clear	357									84,992										239															
Htg. Sys./WH Other	295									162,450										551															
Air Conditioning Work	50									4,814										96															

**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 Season		Billing Adjusted First-Year Savings					Average Billing Adjusted Savings per Dwelling Receiving Measures								
	Total	Electric	Gas	Cooling	Heating	Electricity			Pk-Day therms	Gas Annual therms	Electricity			Pk-Day therms	Gas Annual therms				
						Summer kW	Summer kWh	Winter kWh			Annual kWh	Summer kW	Winter kWh			Annual kWh			
Total Efficiency Measures	581	510	341	506	510	109.8		95.7		378,211	845	77,673	0.217	0.188	742	2.48	228		
Total Shell & Htg. Sys. Repl	580	509	341	500	509	93.2	105,922	69.6	105,349	211,271	832	75,095	0.186	0.137	207	415	2.44	220	
Total Shell Measures	580	509	341	500	509	93.2	105,922	68.7	104,021	209,943	480	43,376	0.186	0.135	204	412	1.41	127	
Wall Insul.	282	241	190	240	9	33.1	39,962	7.2	11,107	51,069	164	14,796	0.138	0.800	1,234	212	0.86	78	
Open Blown Ceiling Insul.	425	365	272	364	21	35.6	42,876	18.1	27,166	70,041	129	11,613	0.098	0.860	1,294	192	0.47	43	
Cavity Fill Insul.	132	98	99	96	3	5.8	6,998	2.2	3,578	10,576	55	4,982	0.060	0.744	1,193	108	0.55	50	
Sloped Attic Insul.	141	108	97	108	6	6.2	7,500	3.9	5,803	13,303	44	3,973	0.058	0.646	967	123	0.45	41	
Kneewall Insul.	100	76	70	76	2	1.5	1,774	0.2	229	2,003	11	1,030	0.019	0.078	114	26	0.16	15	
Infil. Reduction	556	477	341	476	30	7.5	9,037	3.5	5,252	14,290	64	5,769	0.016	0.116	175	30	0.19	17	
Found./Crawl. Insul.	190	75	159	73	11	4.4	5,332	2.2	3,235	8,567	19	1,733	0.061	0.199	294	114	0.12	11	
Bandjoist Insul.	151	11	140	-	11	0.0	0	0.7	1,011	1,011	8	696	0.000	0	0.062	92	0.05	5	
Furnace Blower Fan ¹	549	478	341	-	478	0.0	0	39.4	59,777	59,777	(2)	(164)	0.000	0	0.082	125	125	(0.01)	(0)
Exhaust Ventilation ²	358	313	197	313	313	-0.9	(7,558)	(8.6)	(13,135)	(20,693)	(11)	(1,051)	-0.003	(24)	(0.027)	(42)	(66)	(0.06)	(5)
Total Heating System Repl	265	11	254	-	11	0.0	0	0.9	1,327	1,327	351	31,719	0.000	0	0.080	121	121	1.38	125
Condensing Htg Sys Repl	248	0	248	-	-	0.0	0	0.0	0	0	346	31,222	-	-	-	-	-	1.39	126
Non-Cond Htg Sys Repl	7	0	7	-	-	0.0	0	0.0	0	0	6	497	-	-	-	-	-	0.79	71
Electric Htg Sys Repl	9	9	0	-	9	0.0	0	0.7	1,124	1,124	0	0	0.000	0	0.083	125	125	-	-
Heat Pump Repl	2	2	0	-	2	0.0	0	0.1	203	203	0	0	0.000	0	0.066	101	101	-	-
Other Htg Sys Repl	0	0	0	-	0	0.0	0	0.0	0	0	0	0	-	-	-	-	-	-	-
				Number of Measures by Fuel Type			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	400	141	259	0	0	0	0.0	0.3	15,822	13.2	2,578	0.000	0.002	112	0.051	10			
Temp. Reduct.	2	2	0	0	0	0	0.0	0.0	232	0.0	0	0.000	0.000	116	-	-			
WH Wrap	0	0	0	0	0	0	0.0	0.0	0	0.0	0	-	-	-	-	-			
Pipe Insul.	351	130	221	0	0	0	0.0	0.0	5,615	1.9	664	0.000	0.000	43	0.01	3			
LF Showerhead	28	14	14	0	0	0	0.0	0.1	2,471	0.3	102	0.000	0.004	177	0.02	7			
Faucet Aerator	44	17	27	0	0	0	0.0	0.0	895	0.2	59	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	-	-	-	-	-			
Hi-Eff or Electric Wtr Htr Repl.	242	51	191	0	0	0	0.0	0.2	6,609	10.7	1,753	0.000	0.003	130	0.06	9			
Lighting	314	314	0	0	0	11.2	20.8	106,961	-	-	0.036	0.066	341	-	-				
Refrigerator/Freezer³	75	75	0	0	0	5.4	5.1	44,157	-	-	0.072	0.068	589	-	-				
Refrigerator Removal	3	3	0	0	0	0.2	0.2	1,548	-	-	0.063	0.059	516	-	-				
Refrigerator Exchange	56	56	0	0	0	3.6	3.4	29,418	-	-	0.065	0.060	525	-	-				
Freezer Removal	0	0	0	0	0	0.0	0.0	0	-	-	-	-	-	-	-				
Freezer Exchange	24	24	0	0	0	1.6	1.5	13,191	-	-	0.068	0.063	550	-	-				

Black Hills Energy
Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$563,060
 Utility Administration Expenditures: \$25,340
 Total Labor and Material Expenditures: \$537,720

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					
	Total	Electric	Gas	Cooling	Heating	Summer kW		Electricity Winter kWh	Annual kWh	Pk-Day therms	Gas Annual therms	Spending on Materials & Labor (\$)	Summer kW	Electricity Winter kWh	Annual kWh	Pk-Day therms	Gas Annual therms	
Total Efficiency Measures	123	0	123	0	0		442,267	0.0	0.0	0	202	19,049	3,596	-	-	-	1.64	155
Total Shell & Htg. Sys. Repl	119	0	119	0	0		368,062	0.0	0.0	0	199	18,360	3,093	-	-	-	1.67	154
Total Shell Measures	119	0	119	0	0		199,584	0.0	0.0	0	112	10,432	1,677	-	-	-	0.95	88
Wall Insul.	56	0	56	0	0		77,183	0.0	0.0	0	41	3,775	1,378	-	-	-	0.73	67
Open Blown Ceiling Insul.	76	0	76	0	0		47,202	0.0	0.0	0	28	2,555	621	-	-	-	0.36	34
Cavity Fill Insul.	24	0	24	0	0		18,927	0.0	0.0	0	17	1,537	789	-	-	-	0.69	64
Sloped Attic Insul.	31	0	31	0	0		11,384	0.0	0.0	0	14	1,291	367	-	-	-	0.45	42
Kneewall Insul.	17	0	17	0	0		4,542	0.0	0.0	0	2	179	267	-	-	-	0.11	11
Infil. Reduction	65	0	65	0	0		21,266	0.0	0.0	0	7	679	327	-	-	-	0.11	10
Found./Crawl. Insul.	24	0	24	0	0		13,091	0.0	0.0	0	3	270	545	-	-	-	0.12	11
Bandjoist Insul.	27	0	27	-	0		5,989	0.0	0.0	0	2	170	222	-	-	-	0.07	6
Furnace Blower Fan ¹	119	0	119	-	0		0	0.0	0.0	0	(0)	(23)	0	-	-	-	(0.00)	(0)
Exhaust Ventilator ²	0	0	0	0	0		0	0.0	0.0	0	0	0	0	-	-	-	-	-
Total Heating System Repl	68	0	68	-	0		168,477	0.0	0.0	0	86	7,928	2,478	-	-	-	1.27	117
Condensing Htg Sys Repl	68	0	68	-	-		168,477	0.0	0.0	0	86	7,928	2,478	-	-	-	1.27	117
Non-Cond Htg Sys Repl	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	-	-	-	-	-
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	-	-	-	-	-
	Total	Electric	Gas	Number of Measures by Fuel Type				Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms
Water Heating	81	0	81	142	Electric	Gas	74,205	0.0	0.0	0	3.2	689	916	-	-	-	0.040	9
Temp. Reduct.	3	0	3	3	0	3	0	0.0	0.0	0	0.1	23	0	-	-	-	0.02	8
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-
Pipe Insul.	73	0	73	73	0	73	1,050	0.0	0.0	0	0.6	219	14	-	-	-	0.01	3
LF Showerhead	7	0	7	7	0	7	51	0.0	0.0	0	0.2	51	7	-	-	-	0.02	7
Faucet Aerator	10	0	10	14	0	14	66	0.0	0.0	0	0.1	20	7	-	-	-	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.	51	0	51	45	0	45	73,039	0.0	0.0	0	2.3	376	1,432	-	-	-	0.05	7
Lighting	0	0	0	0	0	0	0	0.0	0.0	0	-	-	0	-	-	-	-	-
Refrigerator/Freezer³	0	0	0	0	0	0	0	0.0	0.0	0	-	-	0	-	-	-	-	-
Refrigerator Removal	0	0	0	0	0	0	0	0.0	0.0	0	-	-	0	-	-	-	-	-
Refrigerator Exchange	0	0	0	0	0	0	0	0.0	0.0	0	-	-	0	-	-	-	-	-
Freezer Removal	0	0	0	0	0	0	0	0.0	0.0	0	-	-	0	-	-	-	-	-
Freezer Exchange	0	0	0	0	0	0	0	0.0	0.0	0	-	-	0	-	-	-	-	-
Total Non-Efficiency Measures	122						95,453						782					
Misc Ins,Attic Access/Vent	34						4,531						133					
Duct Sealing	3						588						196					
Duct Insulation	2						70						35					
Damming Material	0						0						0					
Htg. Sys. Tune & Clean	40						4,499						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	66						12,997						197					
Water Heater Ventilation	44						7,059						160					
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						957						80					
Health/Safety Other	0						0						0					
Consumables	0						0						0					
General Repairs	53						13,070						247					
Meter Refrig (no action)	1						0						0					
Meter Freezer (no action)	0						0						0					
Support	122						51,682						424					
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					
Unspecified/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 Season		Billing Adjusted First-Year Savings					Average Billing Adjusted Savings per Dwelling Receiving Measures							
	Total	Electric	Gas	Cooling	Heating	Electricity			Gas	Electricity			Gas					
						Summer kW	Winter kWh	Annual kWh		Summer kW	Winter kWh	Annual kWh		Pk-Day therms	Annual therms			
Total Efficiency Measures	169	0	168	0	0	0.0	0.0	0	0	0	329	31,157	-	-	-	1.96	185	
Total Shell & Htg. Sys. Repl	169	0	168	0	0	0.0	0	0.0	0	0	323	29,958	-	-	-	1.92	178	
Total Shell Measures	169	0	168	0	0	0.0	0	0.0	0	0	188	17,475	-	-	-	1.12	104	
Wall Insul.	86	0	86	0	0	0.0	0	0.0	0	0	61	5,628	-	-	-	0.70	65	
Open Blown Ceiling Insul.	123	0	123	0	0	0.0	0	0.0	0	0	43	4,023	-	-	-	0.35	33	
Cavity Fill Insul.	41	0	41	0	0	0.0	0	0.0	0	0	28	2,609	-	-	-	0.68	64	
Sloped Attic Insul.	48	0	48	0	0	0.0	0	0.0	0	0	21	1,954	-	-	-	0.44	41	
Kneewall Insul.	27	0	27	0	0	0.0	0	0.0	0	0	4	331	-	-	-	0.13	12	
Infil. Reduction	167	0	166	0	0	0.0	0	0.0	0	0	28	2,587	-	-	-	0.17	16	
Found./Crawl. Insul.	41	0	41	0	0	0.0	0	0.0	0	0	7	655	-	-	-	0.17	16	
Bandjoist Insul.	55	0	55	-	0	0.0	0	0.0	0	0	4	354	-	-	-	0.07	6	
Furnace Blower Fan ¹	168	0	167	-	0	0.0	0	0.0	0	0	(1)	(74)	-	-	-	(0.00)	(0)	
Exhaust Ventilation ²	112	0	111	0	0	0.0	0	0.0	0	0	(6)	(592)	-	-	-	(0.06)	(5)	
Total Heating System Repl	105	0	104	-	0	0.0	0	0.0	0	0	135	12,483	-	-	-	1.30	120	
Condensing Htg Sys Repl	99	0	99	-	-	0.0	0	0.0	0	0	132	12,191	-	-	-	1.33	123	
Non-Cond Htg Sys Repl	6	0	5	-	-	0.0	0	0.0	0	0	3	292	-	-	-	0.64	58	
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			Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		
Water Heating	121	0	121	0	0	0	0.0	0.0	0	0	5.8	1,199	-	-	-	0.048	10	
Temp. Reduct.	4	0	4	0	0	0	0.0	0.0	0	0	0.1	30	-	-	-	0.02	8	
WH Wrap	0	0	0	0	0	0	0.0	0.0	0	0	0.0	0	-	-	-	-	-	
Pipe Insul.	113	0	113	0	0	0	0.0	0.0	0	0	1.0	340	-	-	-	0.01	3	
LF Showerhead	14	0	14	0	0	0	0.0	0.0	0	0	0.3	102	-	-	-	0.02	7	
Faucet Aerator	12	0	12	0	0	0	0.0	0.0	0	0	0.1	26	-	-	-	0.01	2	
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0.0	0.0	0	0	0.0	0	-	-	-	-	-	
Hi-Eff or Electric Wtr Htr Repl.	86	0	86	0	0	0	0.0	0.0	0	0	4.3	702	-	-	-	0.05	8	
Lighting	0	0	0	0	0	0.0	0.0	0	0	0	-	-	-	-	-	-	-	
Refrigerator/Freezer³	0	0	0	0	0	0.0	0.0	0	0	0	-	-	-	-	-	-	-	
Refrigerator Removal	0	0	0	0	0	0.0	0.0	0	0	0	-	-	-	-	-	-	-	
Refrigerator Exchange	0	0	0	0	0	0.0	0.0	0	0	0	-	-	-	-	-	-	-	
Freezer Removal	0	0	0	0	0	0.0	0.0	0	0	0	-	-	-	-	-	-	-	
Freezer Exchange	0	0	0	0	0	0.0	0.0	0	0	0	-	-	-	-	-	-	-	

MidAmerican Energy
Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$2,432,538

Utility Administration Expenditures: \$83,813

Total Labor and Material Expenditures: \$2,348,725

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									
	Total	Electric	Gas	Cooling	Heating		Summer		Electricity		Annual kWh	Gas		Spending on Materials & Labor (\$)	Summer		Electricity		Gas		
							kWh	kWh	kWh	kWh		Pk-Day therms	Annual therms		kWh	kWh	kWh	kWh	Pk-Day therms	Annual therms	
Total Efficiency Measures	416	342	337	336	342	1,926,498	76.0		68.3		265,939	718	67,060	4,631	0.226		0.200		778	2.13	199
Total Shell & Htg. Sys. Repl	410	336	337	300	336	1,556,212	64.6	77,934	49.3	74,845	152,779	703	63,919	3,796	0.215	260	0.147	223	455	2.09	190
Total Shell Measures	410	336	337	300	336	1,007,663	64.6	77,934	48.9	74,271	152,205	447	40,551	2,458	0.215	260	0.146	221	453	1.33	120
Wall Insul.	240	196	201	195	12	390,188	26.9	32,463	8.9	13,618	46,082	147	13,369	1,626	0.138	166	0.743	1,135	235	0.73	67
Open Blown Ceiling Insul.	301	242	240	241	19	222,273	21.0	25,305	10.7	16,318	41,623	120	10,856	738	0.087	105	0.566	859	172	0.50	45
Cavity Fill Insul.	127	98	108	97	7	93,675	5.5	6,693	3.3	4,866	11,560	82	7,315	738	0.057	69	0.472	695	118	0.76	68
Sloped Attic Insul.	107	88	81	87	5	47,567	5.6	6,811	3.0	4,688	11,499	36	3,247	445	0.065	78	0.605	938	131	0.44	40
Kneewall Insul.	79	54	71	53	2	27,703	1.1	1,337	0.1	213	1,550	14	1,266	351	0.021	25	0.070	106	29	0.20	18
Infil. Reduction	254	182	217	179	20	94,261	1.7	2,107	1.3	1,944	4,051	20	1,799	371	0.010	12	0.064	97	22	0.09	8
Found./Crawl. Insul.	153	48	139	45	10	104,938	2.7	3,218	1.5	2,242	5,460	24	2,216	686	0.059	72	0.151	224	114	0.17	16
Bandjoist Insul.	123	10	113	-	10	27,057	0.0	0	0.7	1,032	1,032	7	600	220	0.000	0	0.069	103	103	0.06	5
Furnace Blower Fan ¹	387	313	337	-	313	0	0.0	0	19.3	29,349	29,349	(1)	(117)	0	0.000	0	0.062	94	94	(0.00)	(0)
Exhaust Ventilator ²	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Total Heating System Repl	224	6	218	-	6	548,549	0.0	0	0.4	574	574	256	23,368	2,449	0.000	0	0.065	96	96	1.17	107
Condensing Htg Sys Repl	218	0	218	-	-	528,407	0.0	0	0.0	0	0	256	23,368	2,424	-	-	-	-	-	1.17	107
Non-Cond Htg Sys Repl	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Electric Htg Sys Repl	3	3	0	-	3	9,642	0.0	0	0.2	277	277	0	0	3,214	0.000	0	0.061	92	92	-	-
Heat Pump Repl	3	3	0	-	3	10,500	0.0	0	0.2	297	297	0	0	3,500	0.000	0	0.068	99	99	-	-
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			Summer kWh		Winter kWh		Annual kWh	Pk-Day therms	Annual therms		Summer kWh		Winter kWh		Annual kWh	Pk-Day therms	Annual therms
Water Heating	338	62	276	773	116	657	331,017	0.0	0.1	7,729	14.8	3,140	979	0.000	0.002	125	0.054	11			
Temp. Reduct.	8	0	8	8	0	8	0	0.0	0.0	0	0.2	60	0	-	-	-	-	-	0.02	8	
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-	-	-	
Pipe Insul.	318	57	261	318	57	261	5,691	0.0	0.0	2,462	2.3	784	18	0.000	0.000	43	0.01	3			
LF Showerhead	65	11	54	73	11	62	716	0.0	0.0	1,942	1.3	390	11	0.000	0.004	177	0.02	7			
Faucet Aerator	105	20	85	170	30	140	828	0.0	0.0	994	0.6	200	8	0.000	0.001	50	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.	228	20	208	204	18	186	323,782	0.0	0.1	2,331	10.5	1,706	1,420	0.000	0.003	117	0.05	8			
Lighting	256	256	0	2,406	2,406	0	16,585	9.0	16.7	86,186	-	-	65	0.035	0.065	337	-	-			
Refrigerator/Freezer³	38	38	0	37	37	0	22,685	2.4	2.2	19,244	-	-	597	0.062	0.058	506	-	-			
Refrigerator Removal	0	0	0	0	0	0	0	0.0	0.0	0	-	-	0	-	-	-	-	-	-	-	
Refrigerator Exchange	34	34	0	33	33	0	20,623	2.1	2.0	17,046	-	-	607	0.062	0.058	501	-	-	-	-	
Freezer Removal	0	0	0	0	0	0	0	0.0	0.0	0	-	-	0	-	-	-	-	-	-	-	
Freezer Exchange	4	4	0	4	4	0	2,062	0.3	0.3	2,198	-	-	515	0.068	0.063	550	-	-	-	-	
Total Non-Efficiency Measures	426	0	0	0	0	0	422,227	0	0	0	0	0	991	0	0	0	0	0	0	0	
Misc Ins,Attic Access/Vent	129	0	0	0	0	0	14,377	0	0	0	0	0	111	0	0	0	0	0	0	0	
Duct Sealing	34	0	0	0	0	0	8,064	0	0	0	0	0	237	0	0	0	0	0	0	0	
Duct Insulation	7	0	0	0	0	0	1,332	0	0	0	0	0	190	0	0	0	0	0	0	0	
Damming Material	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Htg. Sys. Tune & Clean	72	0	0	0	0	0	7,326	0	0	0	0	0	102	0	0	0	0	0	0	0	
Htg. Sys./WH Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Air Conditioning Work	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Water Heater Repair	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Refrigerator Coil Clean	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Waterbed Mattress Pad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Programmable Tstat	31	0	0	0	0	0	2,985	0	0	0	0	0	96	0	0	0	0	0	0	0	
Unspecified Utility Meas.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
CO Detector	2	0	0	0	0	0	200	0	0	0	0	0	100	0	0	0	0	0	0	0	
Smoke Detector	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Fuses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Htg Sys Safety Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Htg Sys Ventilation	201	0	0	0	0	0	37,822	0	0	0	0	0	188	0	0	0	0	0	0	0	
Water Heater Ventilation	182	0	0	0	0	0	29,076	0	0	0	0	0	160	0	0	0	0	0	0	0	
Bathroom Ventilation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Dryer Ventilation	1	0	0	0	0	0	80	0	0	0	0	0	80	0	0	0	0	0	0	0	
Kitchen Ventilation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Other Exhaust Ventilation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Asbestos Removal (Minor)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Health/Safety Repairs	53	0	0	0	0	0	3,128	0	0	0	0	0	59	0	0	0	0	0	0	0	
Health/Safety Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Consumables	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
General Repairs	225	0	0	0	0	0	62,831	0	0	0	0	0	279	0	0	0	0	0	0	0	
Meter Refrig (no action)	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Meter Freezer (no action)	20	0																			

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 Season		Billing Adjusted First-Year Savings					Average Billing Adjusted Savings per Dwelling Receiving Measures									
	Total	Electric	Gas	Cooling	Heating	Electricity			Pk-Day therms	Gas Annual therms	Electricity			Pk-Day therms	Gas Annual therms					
						Summer kW	Summer kWh	Winter kWh			Annual kWh	Summer kW	Winter kWh			Annual kWh				
Total Efficiency Measures	552	464	458	463	464	115.5	113,391	101.6	381,178	1,103	102,955	0.249	0.219	822	2.41	225				
Total Shell & Htg. Sys. Repl	552	464	458	458	464	100.3	113,391	77.0	116,894	230,286	1,079	97,921	0.219	248	0.166	252	496	2.36	214	
Total Shell Measures	552	464	458	458	464	100.3	113,391	76.3	115,741	229,132	679	61,497	0.219	248	0.164	249	494	1.48	134	
Wall Insul.	338	281	290	280	13	40.0	48,226	9.1	13,970	62,196	217	19,748	0.143	172	0.703	1,075	221	0.75	68	
Open Blown Ceiling Insul.	434	355	353	354	27	32.2	38,886	20.7	31,372	70,258	186	16,853	0.091	110	0.766	1,162	198	0.53	48	
Cavity Fill Insul.	191	154	166	153	11	8.2	9,880	4.8	7,113	16,993	108	9,721	0.054	65	0.438	647	110	0.65	59	
Sloped Attic Insul.	150	124	119	123	6	7.6	9,167	4.1	6,308	15,476	49	4,443	0.062	75	0.691	1,051	125	0.41	37	
Kneewall Insul.	134	101	118	100	4	2.4	2,867	0.4	587	3,453	23	2,059	0.024	29	0.096	147	34	0.19	17	
Infil. Reduction	544	430	454	427	30	7.2	8,703	3.3	4,987	13,690	78	7,085	0.017	20	0.110	166	32	0.17	16	
Found./Crawl. Insul.	224	65	202	60	15	3.7	4,522	2.3	3,478	8,000	32	2,940	0.062	75	0.154	232	123	0.16	15	
Bandjoist Insul.	183	12	171	-	12	0.0	0	0.8	1,221	1,221	9	828	0.000	0	0.068	102	102	0.05	5	
Furnace Blower Fan ¹	522	434	458	-	434	0.0	0	41.7	63,311	63,311	(3)	(252)	0.000	0	0.096	146	146	(0.01)	(1)	
Exhaust Ventilation ²	433	363	361	363	363	-1.1	(8,860)	(11.0)	(16,606)	(25,465)	(21)	(1,926)	-0.003	(24)	(0.030)	(46)	(70)	(0.06)	(5)	
Total Heating System Repl	333	6	327	-	6	0.0	0	0.8	1,153	1,153	400	36,424	0.000	0	0.131	192	192	1.22	111	
Condensing Htg Sys Repl	304	0	304	-	-	0.0	0	0.0	0	0	382	34,772	-	-	-	-	-	1.26	114	
Non-Cond Htg Sys Repl	23	0	23	-	-	0.0	0	0.0	0	0	18	1,651	-	-	-	-	-	0.79	72	
Electric Htg Sys Repl	4	4	0	-	4	0.0	0	0.4	631	631	0	0	0.000	0	0.107	158	158	-	-	
Heat Pump Repl	3	3	0	-	3	0.0	0	0.4	523	523	0	0	0.000	0	0.121	174	174	-	-	
Other Htg Sys Repl	0	0	0	-	0	0.0	0	0.0	0	0	0	0	-	-	-	-	-	-	-	
				Number of Measures by Fuel Type			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	480	83	397	0	0	0	0.0	0.2	11,772	24.2	5,034	0.000	0.002	142	0.061	13				
Temp. Reduct.	9	0	9	0	0	0	0.0	0.0	0	0.2	68	-	-	-	0.02	8				
WH Wrap	0	0	0	0	0	0	0.0	0.0	0	0.0	0	-	-	-	-	-				
Pipe Insul.	463	77	386	0	0	0	0.0	0.0	3,326	3.3	1,160	0.000	0.000	43	0.01	3				
LF Showerhead	101	17	84	0	0	0	0.0	0.1	3,001	2.0	612	0.000	0.004	177	0.02	7				
Faucet Aerator	174	30	144	0	0	0	0.0	0.0	1,558	1.1	328	0.000	0.001	52	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.	351	30	321	0	0	0	0.0	0.1	3,888	17.6	2,866	0.000	0.003	130	0.05	9				
Lighting	345	345	0	0	0	11.1	20.5	105,620	-	-	0.032	0.059	306	-	-					
Refrigerator/Freezer³	61	61	0	0	0	4.1	3.9	33,500	-	-	0.068	0.063	549	-	-					
Refrigerator Removal	0	0	0	0	0	0.0	0.0	0	-	-	-	-	-	-	-					
Refrigerator Exchange	50	50	0	0	0	3.2	3.0	25,805	-	-	0.063	0.059	516	-	-					
Freezer Removal	0	0	0	0	0	0.0	0.0	0	-	-	-	-	-	-	-					
Freezer Exchange	14	14	0	0	0	0.9	0.9	7,695	-	-	0.068	0.063	550	-	-					

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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.

Community Action of Eastern Iowa
Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$1,317,385
 Utility Administration Expenditures: -
 Total Labor and Material Expenditures: \$1,317,385

Measure	Number of Dwellings with Impacts						Number of Dwellings with kWh Impacts						Spending on Materials & Labor (\$)	Billing Adjusted First-Year Savings							Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures									
	Total	Electric	Gas	Propane	Fuel Oil	Other	Season		Summer kW	Winter kWh	Annual kWh	Pk-Day therms		Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Spending on Materials & Labor (\$)	Summer kW	Electricity		Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu			
							Cooling	Heating												Summer kWh	Winter kWh									
Total Efficiency Measures	85	85	84	0	0	0	85	84	712,600	18.4	13.1	62,867	200	18,809	0	0	0	8,384	0.216	0.156	740	2.39	224	-	-	-				
Total Shell & Htg. Sys. Repl	85	85	84	0	0	0	85	83	595,359	15.0	17,331	7.8	11,983	29,314	197	18,094	0	7,004	0.177	0.204	0.094	144	345	2.34	215	-	-	-		
Total Shell Measures	85	85	84	0	0	0	85	83	344,517	15.0	17,331	7.8	11,983	29,314	107	9,819	0	4,053	0.177	0.204	0.094	144	345	1.27	117	-	-	-		
Wall Insul.	62	62	61	0	0	0	62	1	117,443	7.3	8,827	0.7	1,144	9,970	40	3,713	0	1,894	0.118	0.142	0.094	144	161	0.66	61	-	-	-		
Open Blown Ceiling Insul.	53	53	53	0	0	0	53	0	25,769	3.7	4,410	0.0	0	4,410	21	1,887	0	486	0.069	0.083	0.000	0	83	0.39	36	-	-	-		
Cavity Fill Insul.	32	24	31	0	0	0	23	1	24,697	1.4	1,739	0.8	1,276	3,015	21	1,908	0	772	0.063	0.076	0.828	1,276	126	0.67	62	-	-	-		
Sloped Attic Insul.	16	15	16	0	0	0	15	0	4,934	0.8	943	0.0	0	943	6	509	0	308	0.052	0.063	0.000	0	63	0.35	32	-	-	-		
Kneewall Insul.	15	8	15	0	0	0	8	0	7,447	0.3	310	0.0	0	310	2	221	0	496	0.032	0.039	0.000	0	39	0.16	15	-	-	-		
Infil. Reduction	85	85	84	0	0	0	85	1	109,814	1.1	1,297	0.3	455	1,752	16	1,512	0	1,292	0.013	0.015	0.295	455	21	0.20	18	-	-	-		
Found/Crawl. Insul.	20	12	20	0	0	0	12	0	15,335	0.6	742	0.0	0	742	3	295	0	777	0.051	0.062	0.000	0	62	0.16	15	-	-	-		
Bandjoist Insul.	16	0	16	0	0	0	-	0	3,851	0.0	0	0.0	0	0	0	31	0	241	-	-	-	-	-	0.02	2	-	-	-		
Furnace Blower Fan ¹	84	81	84	0	0	0	-	81	0	0	0	6.5	10,046	10,046	(0)	(38)	0	0	0.000	0	0.081	124	124	(0.00)	(0)	-	-	-		
Exhaust Ventilation ²	41	41	41	0	0	0	41	41	35,029	-0.1	(936)	(0.6)	(936)	(1,872)	(2)	(219)	0	854	-0.003	(23)	(0.015)	(23)	(46)	(0.06)	(5)	-	-	-		
Total Heating System Repl	67	0	67	0	0	0	-	0	250,842	0.0	0	0.0	0	90	8,275	0	3,744	-	-	-	-	-	-	1.34	124	-	-	-		
Condensing Htg Sys Repl	64	0	64	0	0	0	-	-	240,033	0.0	0	0.0	0	0	87	7,952	0	3,751	-	-	-	-	-	-	1.35	124	-	-	-	
Non-Cond Htg Sys Repl	3	0	3	0	0	0	-	-	10,809	0.0	0	0.0	0	0	4	322	0	3,603	-	-	-	-	-	-	1.17	107	-	-	-	
Electric Htg Sys Repl	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	-	-	-	-	-	-	-	-	-	-	-	
Other Htg Sys Repl	0	0	0	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	
Water Heating	Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Measures Installed by Fuel Type						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		
	83	17	66	0	0	0	Total	Electric	Gas	Propane	Fuel Oil	Other																	180	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	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	0	0	0	0	0
Pipe Insul.	78	17	61	0	0	0	79	17	62	0	0	0	0	0	0	0	0	1,474	0.0	0.0	0.0	734	0.5	183	0	0	0	0	0	0
LF Showerhead	11	4	7	0	0	0	11	4	7	0	0	0	0	0	0	0	0	110	0.0	0.0	0.0	706	0.2	51	0	0	0	0	0	0
Faucet Aerator	21	3	18	0	0	0	27	3	24	0	0	0	0	0	0	0	0	135	0.0	0.0	0.0	99	0.1	34	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	0	0	0	0	0
Hi-Eff or Electric Wtr Htr Repl.	63	12	51	0	0	0	63	12	51	0	0	0	0	0	0	0	0	103,218	0.0	0.0	1,555	2.7	446	0	0	0	0	0	0	
Lighting	57	57	53	0	0	0	533	533	8,552	1.0	0.9	7,876	-	-	-	-	-	66	0.042	0.077	396	-	-	-	-	-	-	-	-	-
Refrigerator/Freezer³	14	14	15	0	0	0	15	15	6,387	0.0	0.0	5,677	-	-	-	-	-	581	0.063	0.059	516	-	-	-	-	-	-	-	-	-
Refrigerator Removal	11	11	11	0	0	0	11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Refrigerator Exchange	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	0	0	0	0	0
Freezer Removal	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	0	0	0	0	0
Freezer Exchange	4	4	4	0	0	0	4	4	2,165	0.3	0.3	2,198	-	-	-	-	-	541	0.068	0.063	550	-	-	-	-	-	-	-	-	-
Total Non-Efficiency Measures	85	85	84	0	0	0	85	84	604,785	15.0	17,331	7.8	11,983	29,314	197	18,094	0	7,004	0.177	0.204	0.094	144	345	2.34	215	-	-	-		
Misc Ins./Attic Access/Vent	72	0	0	0	0	0	72	0	12,377	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Duct Sealing	68	0	0	0	0	0	68	0	14,710	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Duct Insulation	48	0	0	0	0	0	48	0	4,469	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Damming Material	22	0	0	0	0	0	22	0	1,322	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Htg. Sys. Tune & Clean	5	0	0	0	0	0	5	0	623	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Htg. Sys./WH Other	13	0	0	0	0	0	13	0	22,696	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Air Conditioning Work	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	0	0	0	0	0	0
Water Heater Repair	3	0	0	0	0	0	3	0	1,395	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Refrigerator Coil Clean	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	0	0	0	0	0	0
Waterbed Mattress Pad	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	0	0	0	0	0	0
Programmable Tstat	54	0	0	0	0	0	54	0	5,295	0.0	0																			

Mid-Sioux Opportunity

Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$445,886
 Utility Administration Expenditures: -
 Total Labor and Material Expenditures: \$445,886

Measure	Number of Dwellings with Impacts						Number of Dwellings with kWh Impacts						Spending on Materials & Labor (\$)	Billing Adjusted First-Year Savings							Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures													
	Total	Electric	Gas	Propane	Fuel Oil	Other	Season Cooling	Season Heating	Summer kW	Winter kWh	Annual kWh	Pk-Day therms		Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Spending on Materials & Labor (\$)	Summer kW	Winter kWh	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu								
																											Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	Electricity	
Total Efficiency Measures	35	35	27	7	0	0	35	35									273,966	11.5	7.2	36,772	76	7,089	1,637	0	0	7,828	0.329	0.206	1,051	2.82	263	234	-	-
Total Shell & Htg. Sys. Repl	35	35	27	7	0	0	35	35	228,938	9.5	10,878	3.9	5,986	16,864	75	6,829	1,615	6,541	0.271	0.112	171	482	2.77	253	231	-	-	-	-	-	-	-	-	
Total Shell Measures	35	35	27	7	0	0	35	35	159,475	9.5	10,878	3.9	5,986	16,864	41	3,705	1,083	4,556	0.271	0.112	171	482	1.50	137	155	-	-	-	-	-	-	-	-	
Wall Insul.	26	26	19	6	0	0	26	1	64,151	3.9	4,649	1.3	1,934	6,582	18	1,649	630	2,467	0.148	0.179	1,265	1,934	0.95	87	105	-	-	-	-	-	-	-	-	
Open Blown Ceiling Insul.	32	32	25	6	0	0	32	1	16,941	2.0	2,427	0.2	313	2,740	4	333	127	0	0.063	0.076	0.205	313	0.15	13	21	-	-	-	-	-	-	-	-	-
Cavity Fill Insul.	16	16	13	2	0	0	16	1	15,614	1.4	1,637	0.3	433	2,070	8	742	97	0	0.085	0.102	0.283	433	0.63	57	49	-	-	-	-	-	-	-	-	-
Sloped Attic Insul.	15	15	12	3	0	0	15	0	6,476	1.2	1,404	0.0	0	1,404	5	426	77	0	0.078	0.094	0.000	0	0.94	0.39	36	26	-	-	-	-	-	-	-	-
Kneewall Insul.	6	6	5	1	0	0	6	0	1,401	0.2	209	0.0	0	209	0	40	32	0	0.029	0.035	0.000	0	0.35	0.09	8	32	-	-	-	-	-	-	-	-
Infil. Reduction	35	34	27	7	0	0	34	1	12,955	0.6	732	0.1	97	829	4	396	81	0	0.018	0.022	0.063	97	0.16	15	12	-	-	-	-	-	-	-	-	-
Found/Crawl. Insul.	23	7	18	4	0	0	6	1	13,535	0.4	460	0.1	80	540	2	157	63	0	0.064	0.077	0.052	80	0.10	9	16	-	-	-	-	-	-	-	-	-
Bandjoist Insul.	25	1	20	4	0	0	-	1	5,491	0.0	0	0.0	30	30	1	81	15	0	0.000	0.020	0.020	30	0.04	4	4	-	-	-	-	-	-	-	-	-
Furnace Blower Fan ¹	34	34	27	7	0	0	-	34	0	0	0	2.6	4,049	4,049	(0)	(12)	(3)	0	0.000	0.078	119	119	(0.00)	(0)	(0)	-	-	-	-	-	-	-	-	
Exhaust Ventilation ²	27	27	20	6	0	0	27	27	22,911	-0.1	(639)	(0.6)	(949)	(1,589)	(1)	(107)	(35)	0	849	-0.003	(24)	(0.023)	(35)	(59)	(0.06)	(6)	(6)	-	-	-	-	-	-	-
Total Heating System Repl	26	0	23	3	0	0	-	0	69,462	0.0	0	0.0	0	0	34	3,124	531	0	2,672	-	-	-	-	-	1.49	136	177	-	-	-	-	-	-	-
Condensing Htg Sys Repl	26	0	23	3	0	0	-	-	69,462	0.0	0	0.0	0	0	34	3,124	531	0	2,672	-	-	-	-	-	1.49	136	177	-	-	-	-	-	-	
Non-Cond Htg Sys Repl	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Heat Pump Repl	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Water Heating	Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Measures Installed by Fuel Type						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						
							Total	Electric	Gas	Propane	Fuel Oil	Other																						
Water Heating	35	12	21	2	0	0	68	19	45	4	0	0	35,396	0.0	0.0	1,087	1.4	260	22	0	0	1,011	0.000	0.001	91	0.065	12	11	-	-	-	-	-	
Temp. Reduct.	1	0	1	0	0	0	1	0	1	0	0	0	0	0.0	0.0	0	0.0	8	0	0	0	0	-	-	-	0.02	8	-	-	-	-	-		
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	12	20	2	0	0	34	12	20	2	0	0	680	0.0	0.0	518	0.2	60	7	0	0	20	0.000	0.000	43	0.01	3	3	-	-	-	-		
LF Showerhead	1	1	0	0	0	0	1	1	0	0	0	0	10	0.0	0.0	177	0.0	0	0	0	10	0.000	0.004	177	-	-	-	-	-	-	-	-		
Faucet Aerator	7	4	3	0	0	0	7	4	3	0	0	0	35	0.0	0.0	133	0.0	4	0	0	5	0.000	0.001	33	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	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-		
Hi-Eff or Electric Wtr Htr Repl.	25	2	21	2	0	0	25	2	21	2	0	0	34,671	0.0	0.0	259	1.2	188	16	0	0	1,387	0.000	0.003	130	0.05	9	8	-	-	-	-		
Lighting	30	30					321	321					2,247	1.5	2.7	14,110	-	-	-	-	-	75	0.049	0.091	470	-	-	-	-	-	-	-	-	
Refrigerator/Freezer³	9	9					9	9					7,386	0.6	0.5	4,712	-	-	-	-	-	821	0.064	0.060	524	-	-	-	-	-	-	-	-	
Refrigerator Removal	0	0					0	0				0	0.0	0.0	0	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-		
Refrigerator Exchange	7	7					7	7				5,937	0.4	0.4	3,613	-	-	-	-	-	-	848	0.063	0.059	516	-	-	-	-	-	-	-		
Freezer Removal	0	0					0	0				0	0.0	0.0	0	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-		
Freezer Exchange	2	2					2	2				1,449	0.1	0.1	1,099	-	-	-	-	-	-	724	0.068	0.063	550	-	-	-	-	-	-	-		
Total Non-Efficiency Measures	35												171,920									4,912												
Misc Ins./Attic Access/Vent	33												3,675									111												
Duct Sealing	1												160									160												
Duct Insulation	21												2,750									131												
Damming Material	16												468									29												
Htg. Sys. Tune & Clean	6												1,093									162												
Htg. Sys./WH Other	23												7,357									320												
Air Conditioning Work	0												0									0												
Water Heater Repair	30												734									24												
Refrigerator Coil Clean	0																																	

North Iowa Community Action Organization
Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$302,663
 Utility Administration Expenditures: -
 Total Labor and Material Expenditures: \$302,663

Measure	Number of Dwellings with Impacts						Number of Dwellings with kWh Impacts						Spending on Materials & Labor (\$)	Billing Adjusted First-Year Savings							Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures									
	Total	Electric	Gas	Propane	Fuel Oil	Other	Season Cooling Heating		Summer kW	Winter kWh	Annual kWh	Pk-Day therms		Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Spending on Materials & Labor (\$)	Summer kW	Electricity		Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu			
							Electric	Gas												Winter kW	Winter kWh							Winter kWh	Winter kWh	
Total Efficiency Measures	18	18	16	0	0	0	18	18	157,537	4.4	8.2	26,959	56	5,653	0	0	0	8,752	0.245	0.455	1,498	3.51	353	-	-	-				
Total Shell & Htg. Sys. Repl	18	18	16	0	0	0	18	18	130,910	2.9	3,104	5.8	9,663	12,767	55	5,435	0	0	0	7,273	0.160	0.325	537	709	3.44	340	-	-	-	
Total Shell Measures	18	18	16	0	0	0	18	18	94,785	2.9	3,104	5.7	9,467	12,571	41	4,013	0	0	0	5,266	0.160	0.318	526	698	2.54	251	-	-	-	
Wall Insul.	14	13	13	0	0	0	12	1	29,494	1.3	1,516	1.8	3,003	4,520	14	1,383	0	0	0	2,107	0.105	0.216	1,818	3,003	348	1.08	106	-	-	-
Open Blown Ceiling Insul.	17	15	15	0	0	0	14	2	14,466	1.1	1,336	0.8	1,397	2,733	16	1,583	0	0	0	851	0.079	0.158	699	182	1.07	106	-	-	-	
Cavity Fill Insul.	7	6	6	0	0	0	5	2	12,972	0.1	110	1.2	2,042	2,152	3	251	0	0	0	1,853	0.018	0.036	2,042	359	0.42	42	-	-	-	
Sloped Attic Insul.	8	6	8	0	0	0	6	0	7,207	0.2	222	0.0	0	222	4	385	0	0	0	901	0.031	0.062	0	37	0.49	48	-	-	-	
Kneewall Insul.	3	2	3	0	0	0	2	0	3,274	0.1	70	0.0	0	70	1	133	0	0	0	1,091	0.029	0.058	0	35	0.45	44	-	-	-	
Infil. Reduction	18	16	16	0	0	0	15	2	11,165	0.2	231	0.3	463	694	3	308	0	0	0	620	0.013	0.026	232	43	0.20	19	-	-	-	
Found/Crawl. Insul.	8	1	8	0	0	0	1	0	1,874	0.0	53	0.0	0	53	1	65	0	0	0	234	0.044	0.088	0	53	0.08	8	-	-	-	
Bandjoist Insul.	0	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	16	16	16	0	0	0	-	16	0	0.0	0	2.2	3,615	3,615	(0)	(15)	0	0	0	0	0.000	0.017	226	226	(0.01)	(1)	-	-	-	
Exhaust Ventilation ²	17	17	15	0	0	0	17	17	14,333	-0.1	(434)	(0.6)	(1,054)	(1,487)	(1)	(80)	0	0	0	843	-0.003	(26)	(0.038)	(62)	(87)	(0.05)	(5)	-	-	-
Total Heating System Repl	12	1	11	0	0	0	-	1	36,125	0.0	0	0.1	196	196	14	1,422	0	0	0	3,010	0.000	0.019	196	196	1.31	129	-	-	-	
Condensing Htg Sys Repl	11	0	11	0	0	0	-	-	35,750	0.0	0	0.0	0	0	14	1,422	0	0	0	3,250	-	-	-	-	1.31	129	-	-	-	
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	375	0.0	0	0.1	196	196	0	0	0	0	0	375	0.000	0.019	196	196	-	-	-	-	-	-
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	-	-	-	-	-	-	-	-	-	

Operation: New View Community Action Agency
Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$769,128
 Utility Administration Expenditures: -
 Total Labor and Material Expenditures: \$769,128

Measure	Number of Dwellings with Impacts						Number of Dwellings with kWh Impacts						Billing Adjusted First-Year Savings										Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures									
	Total	Electric	Gas	Propane	Fuel Oil	Other	Season		Spending on Materials & Labor (\$)	Electricity		Annual kWh	Gas		Propane gallons	Fuel Oil gallons	Other Mbtu	Spending on Materials & Labor (\$)	Electricity		Annual kWh	Gas		Propane gallons	Fuel Oil gallons	Other Mbtu						
							Cooling	Heating		Summer kW	Winter kWh		Pk-Day therms	Annual therms					Summer kW	Winter kWh		Pk-Day therms	Annual therms									
Total Efficiency Measures	62	62	50	9	1	0	60	62	432,972	11.5	8.2	39,004	121	11,296	1,966	57	0	6,983	0.192	0.132	629	2.43	226	218	57	-						
Total Shell & Htg. Sys. Repl	62	62	50	9	1	0	58	62	374,124	9.4	10,835	4.7	7,291	18,126	120	11,026	1,922	57	0	6,034	0.162	187	0.076	118	292	2.40	221	214	57	-		
Total Shell Measures	62	62	50	9	1	0	58	62	221,296	9.4	10,835	4.7	7,291	18,126	77	7,046	1,312	57	0	3,569	0.162	187	0.076	118	292	1.53	141	146	57	-		
Wall Insul.	38	35	31	5	1	0	35	1	66,296	4.1	4,919	0.7	1,128	6,047	23	2,149	246	56	0	1,745	0.117	141	0.732	1,128	173	0.75	69	49	56	-		
Open Blown Ceiling Insul.	39	37	31	7	0	0	37	1	35,121	2.6	3,111	0.1	208	3,319	19	1,719	268	0	0	901	0.070	84	0.135	208	90	0.60	55	38	-	-		
Cavity Fill Insul.	26	15	22	4	0	0	15	0	34,174	1.3	1,508	0.0	0	1,508	19	1,752	512	0	0	1,314	0.083	101	0.000	0	101	0.87	80	128	-	-		
Sloped Attic Insul.	12	11	11	1	0	0	11	0	6,358	0.3	387	0.0	0	387	3	306	35	0	0	530	0.029	35	0.000	0	35	0.30	28	35	-	-		
Kneewall Insul.	10	8	9	1	0	0	8	0	3,030	0.1	140	0.0	0	140	1	78	8	0	0	303	0.015	17	0.000	0	17	0.09	9	8	-	-		
Infil. Reduction	62	55	50	9	1	0	55	2	45,426	0.7	824	0.2	259	1,082	10	917	166	5	0	733	0.012	15	0.084	129	20	0.20	18	18	5	-		
Found/Crawl. Insul.	14	8	10	4	0	0	8	0	14,800	0.4	495	0.0	0	495	2	215	94	0	0	1,057	0.051	62	0.000	0	62	0.23	22	23	-	-		
Bandjoist Insul.	6	0	4	2	0	0	0	0	1,361	0.0	0	0.0	0	0	0	28	11	0	0	227	-	-	-	-	-	0.08	7	6	-	-		
Furnace Blower Fan ¹	60	60	50	9	1	0	-	60	0	0.0	0	4.3	6,554	6,554	(0)	(28)	(5)	(0)	0	0.000	0	0.071	109	109	(0.01)	(1)	(1)	(0)	-	-		
Exhaust Ventilation ²	23	23	17	4	1	0	23	23	14,731	-0.1	(548)	(0.6)	(858)	(1,406)	(1)	(91)	(23)	(4)	0	640	-0.003	(24)	(0.024)	(37)	(61)	(0.06)	(6)	(6)	(4)	-	-	
Total Heating System Repl	35	0	32	3	0	0	-	0	152,829	0.0	0	0.0	0	0	43	3,981	610	0	0	4,367	-	-	-	-	-	1.35	124	203	-	-		
Condensing Htg Sys Repl	30	0	27	3	0	0	-	-	137,257	0.0	0	0.0	0	0	40	3,688	610	0	0	4,575	-	-	-	-	-	1.49	137	203	-	-		
Non-Cond Htg Sys Repl	5	0	5	0	0	0	-	-	15,572	0.0	0	0.0	0	0	3	292	0	0	0	3,114	-	-	-	-	-	0.64	58	-	-	-		
Electric Htg Sys Repl	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	-	-	-	-	-	-	-	-	-	-		
Other Htg Sys Repl	0	0	0	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-		
Water Heating	Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Measures Installed by Fuel Type						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				
	56	23	29	4	0	0	Total	Electric	Gas	Propane	Fuel Oil	Other																	77	24	46	7
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	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	0	0	0	0	0	0	0
Pipe Insul.	52	22	27	3	0	0	52	22	27	3	0	0	0	0	1,007	0.0	0.0	950	0.2	81	10	0	0	0	0	19	0.000	0.000	43	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	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	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	0	0	0	0	0	0	0	0	0
Hi-Eff or Electric Wtr Htr Repl.	25	2	19	4	0	0	25	2	19	4	0	0	0	0	46,926	0.0	0.0	259	1.2	188	35	0	0	0	1,877	0.000	0.003	130	0.06	10	9	
Lighting	54	54	348	348	0	0	348	348	2,394	1.6	2.9	14,923	-	-	-	-	-	-	-	44	0.029	0.054	276	-	-	-	-	-	-	-	-	
Refrigerator/Freezer³	8	8	9	9	0	0	9	9	8,521	0.6	0.5	4,745	-	-	-	-	-	-	-	1,065	0.073	0.068	593	-	-	-	-	-	-	-	-	
Refrigerator Removal	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	0	0	0	0	0	0	
Refrigerator Exchange	6	6	6	6	0	0	6	6	5,734	0.4	0.4	3,097	-	-	-	-	-	-	-	956	0.063	0.059	516	-	-	-	-	-	-	-	-	
Freezer Removal	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	0	0	0	0	0	0	
Freezer Exchange	3	3	3	3	0	0	3	3	2,787	0.2	0.2	1,649	-	-	-	-	-	-	-	929	0.068	0.063	550	-	-	-	-	-	-	-	-	
Total Non-Efficiency Measures	62	0	0	0	0	0	0	0	336,156	0	0	0	0	0	0	0	0	0	0	5,422	0	0	0	0	0	0	0	0	0	0	0	
Misc Ins./Attic Access/Vent	57	0	0	0	0	0	0	0	9,847	0	0	0	0	0	0	0	0	0	0	173	0	0	0	0	0	0	0	0	0	0	0	
Duct Sealing	27	0	0	0	0	0	0	0	1,525	0	0	0	0	0	0	0	0	0	0	56	0	0	0	0	0	0	0	0	0	0	0	
Duct Insulation	29	0	0	0	0	0	0	0	3,087	0	0	0	0	0	0	0	0	0	0	106	0	0	0	0	0	0	0	0	0	0	0	
Damming Material	38	0	0	0	0	0	0	0	1,822	0	0	0	0	0	0	0	0	0	0	48	0	0	0	0	0	0	0	0	0	0	0	
Htg. Sys. Tune & Clean	32	0	0	0	0	0	0	0	5,714	0	0	0	0	0	0	0	0	0	0	179	0	0	0	0	0	0	0	0	0	0	0	
Htg. Sys./WH Other	14	0	0	0	0	0	0	0	8,866	0	0	0	0	0	0	0	0	0	0	633	0	0	0	0	0	0	0	0	0	0	0	
Air Conditioning Work	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	0	0	0	0	0	0	
Water Heater Repair	2	0	0	0	0	0	0	0	850	0	0	0	0	0	0	0	0	0	0	425	0	0	0	0	0	0	0	0	0	0	0	
Refrigerator Coil Clean	0	0</																														

Operation Threshold

Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$1,060,499

Utility Administration Expenditures: -

Total Labor and Material Expenditures: \$1,060,499

Measure	Number of Dwellings with Impacts						Number of Dwellings with kWh Impacts						Spending on Materials & Labor (\$)	Billing Adjusted First-Year Savings							Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures										
	Total	Electric	Gas	Propane	Fuel Oil	Other	Season		Summer kW	Winter kWh	Annual kWh	Pk-Day therms		Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu	Spending on Materials & Labor (\$)	Summer kW	Electricity		Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu				
							Cooling	Heating												Summer kWh	Winter kWh										
Total Efficiency Measures	76	76	72	2	0	0	76	76	680,839	18.4	10.4	43,535	184	17,503	637	0	0	7,643	0.243	0.137	573	2.55	243	319	-	-					
Total Shell & Htg. Sys. Repl	76	76	72	2	0	0	75	76	495,529	17.4	20,111	8.7	13,588	33,699	181	16,818	609	0	0	6,520	0.233	268	0.115	179	443	2.51	234	304	-	-	
Total Shell Measures	76	76	72	2	0	0	75	76	352,159	17.4	20,111	8.6	13,483	33,595	114	10,596	373	0	0	4,634	0.233	268	0.114	177	442	1.58	147	187	-	-	
Wall Insul.	65	64	63	1	0	0	64	1	129,114	7.9	9,506	0.2	267	9,773	53	4,946	111	0	0	1,986	0.123	149	0.171	267	153	0.84	79	111	-	-	
Open Blown Ceiling Insul.	69	68	65	2	0	0	68	2	49,125	5.3	6,366	1.2	1,880	8,246	23	2,142	81	0	0	712	0.078	94	0.602	940	121	0.35	33	41	-	-	
Cavity Fill Insul.	24	19	24	0	0	0	19	0	17,925	1.0	1,154	0.0	0	1,154	12	1,081	0	0	0	747	0.050	61	0.000	0	61	0.48	45	-	-	-	
Sloped Attic Insul.	34	32	33	1	0	0	32	0	19,097	1.7	2,096	0.0	0	2,096	13	1,176	103	0	0	562	0.054	66	0.000	0	66	0.38	36	103	-	-	
Kneewall Insul.	23	21	22	1	0	0	21	0	5,748	0.3	352	0.0	0	352	2	229	45	0	0	290	0.014	17	0.000	0	17	0.11	10	45	-	-	
Infil. Reduction	76	75	72	2	0	0	75	2	47,220	1.1	1,363	0.4	665	2,028	9	802	33	0	0	621	0.015	18	0.213	332	27	0.12	11	16	-	-	
Found/Crckt. Insul.	34	7	33	0	0	0	6	1	16,506	0.3	371	0.0	58	429	3	298	0	0	0	485	0.001	62	0.037	58	61	0.10	9	-	-	-	
Bandjoist Insul.	56	2	53	1	0	0	-	2	7,690	0.0	0	0.2	319	319	2	191	8	0	0	137	0.000	0	0.102	160	160	0.04	4	8	-	-	
Furnace Blower Fan ¹	74	74	72	2	0	0	-	74	0	0.0	0	7.7	12,009	12,009	(0)	(41)	(1)	0	0	0	0.000	0	0.104	162	162	(0.01)	(1)	(1)	-	-	
Exhaust Ventilation ²	46	46	43	1	0	0	46	46	59,734	-0.1	(1,096)	(1.1)	(1,716)	(2,812)	(2)	(229)	(6)	0	0	1,299	-0.003	(24)	(0.024)	(37)	(61)	(0.06)	(6)	(6)	-	-	
Total Heating System Repl	60	1	57	2	0	0	-	1	143,370	0.0	0	0.1	105	105	67	6,223	235	0	0	2,390	0.000	0	0.067	105	105	1.17	109	118	-	-	
Condensing Htg Sys Repl	58	0	56	2	0	0	-	-	138,940	0.0	0	0.0	0	0	66	6,164	235	0	0	2,396	-	-	-	-	-	-	118	118	-	-	
Non-Cond Htg Sys Repl	1	0	1	0	0	0	-	-	1,788	0.0	0	0.0	0	0	1	58	0	0	0	1,788	-	-	-	-	-	0.62	58	-	-	-	
Electric Htg Sys Repl	1	1	0	0	0	0	1	0	2,642	0.0	0	0.1	105	105	0	0	0	0	0	0	0.000	0	0.067	105	105	-	-	-	-	-	
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	-	-	-	-	-	-	-	-	-	-	
Water Heating	71	4	65	2	0	0	137	8	82,257	0.0	0.0	0.0	595	3.3	685	29	0	0	0	0	1,159	0.000	0.003	149	0.051	11	14	-	-	-	-
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.	69	4	63	2	0	0	69	4	1,300	0.0	0.0	0.0	173	0.5	189	7	0	0	0	0	19	0.000	0.000	43	0.01	3	3	-	-	-	-
LF Showerhead	12	0	11	1	0	0	12	0	120	0.0	0.0	0.0	0	0.3	80	8	0	0	0	0	10	-	-	-	0.02	7	8	-	-	-	-
Faucet Aerator	3	1	2	0	0	0	3	1	15	0.0	0.0	0.0	33	0.0	3	0	0	0	0	0	5	0.000	0.001	33	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	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Hi-Eff or Electric Wtr Htr Repl.	53	3	48	2	0	0	53	3	80,822	0.0	0.0	0.0	389	2.5	412	14	0	0	0	0	1,525	0.000	0.003	130	0.05	9	7	-	-	-	-
Lighting	44	44	199	199	0	0	0	0	1,393	0.9	1.6	8,178	-	-	-	-	-	-	32	0.020	0.036	186	-	-	-	-	-	-			
Refrigerator/Freezer³	2	2	2	2	0	0	2	2	1,660	0.1	0.1	1,066	-	-	-	-	-	-	830	0.066	0.061	533	-	-	-	-	-	-			
Refrigerator Removal	0	0	0	0	0	0	0	0	0	0.0	0.0	0	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-		
Refrigerator Exchange	1	1	1	1	0	0	1	1	1,279	0.1	0.1	516	-	-	-	-	-	-	1,279	0.063	0.059	516	-	-	-	-	-	-			
Freezer Removal	0	0	0	0	0	0	0	0	0	0.0	0.0	0	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-		
Freezer Exchange	1	1	1	1	0	0	1	1	381	0.1	0.1	550	-	-	-	-	-	-	381	0.068	0.063	550	-	-	-	-	-	-			
Total Non-Efficiency Measures	76	478,659	6,311																												
Misc Ins./Attic Access/Vent	76	16,551	218																												
Duct Sealing	70	5,965	85																												
Duct Insulation	21	1,778	85																												
Damming Material	47	1,480	31																												
Htg. Sys. Tune & Clean	11	608	55																												
Htg. Sys./WH Other	44	7,858	179																												
Air Conditioning Work	9	227	25																												
Water Heater Repair	4	183	46																												
Refrigerator Coil Clean	0	0	0																												
Waterbed Mattress Pad	0	0	0																												
Programmable Tstat	2	180	90																												
Unspecified Utility Meas.	0	0	0																												
CO Detector	70	4,235	61																												
Smoke Detector	47	2,625	56																												
Fuses	4	335	84																												
Htg Sys Safety Check	0	0	0																												
Htg Sys Ventilation	60	12,451	208																												
Water Heater Ventilation	53	6,254	118																												
Bathroom Ventilation	11	1,309	119																												
Dryer Ventilation	59	4,454	75																												
Kitchen Ventilation	7	1,313	188																												
Other Exhaust Ventilation	42	1,297	31																												
Asbestos Removal (Minor)	12	11,569	964																												
Health/Safety Repairs	70	39,598	565																												
Health/Safety Other	14	1,218	87																												
Consumables	22	966	44																												
General Repairs	75	33,003	440																												
Meter Refrig (no action)	59	0	0																												
Meter Freezer (no action)	27	0	0																												
Support	76	293,293	3,859																												
Transportation Allowance	22	3,483	158																												
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	27,465	429																												
Unspecified/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 refrigerator 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 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$319,273
 Utility Administration Expenditures: -
 Total Labor and Material Expenditures: \$319,273

Measure	Number of Dwellings with Impacts						Number of Dwellings with kWh Impacts						Billing Adjusted First-Year Savings										Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures								
	Total	Electric	Gas	Propane	Fuel Oil	Other	Season		Spending on Materials & Labor (\$)¹	Electricity			Gas			Spending on Materials & Labor (\$)	Electricity			Gas											
							Cooling	Heating		Summer kW	Winter kWh	Annual kWh	Pk-Day therms	Annual therms	Propane gallons		Fuel Oil gallons	Other Mbtu	Summer kW	Winter kWh	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Other Mbtu					
Total Efficiency Measures	21	21	15	1	0	0	21	21	181,791	4.0	6.6	19,566	34	3,081	155	0	0	8,657	0.190	0.316	932	2.29	205	155	-	-					
Total Shell & Htg. Sys. Repl	21	21	15	1	0	0	20	21	154,499	3.4	3,748	5.8	8,531	12,278	34	2,977	142	0	7,357	0.170	0.275	406	585	2.26	198	142	-				
Total Shell Measures	21	21	15	1	0	0	20	21	82,249	3.4	3,748	5.7	8,359	12,106	18	1,601	17	0	3,917	0.170	0.270	398	576	1.21	107	17	-				
Wall Insul.	4	3	4	0	0	0	3	0	10,611	0.5	563	0.0	0	563	4	358	0	0	2,653	0.156	0.000	0	188	1.02	90	-	-				
Open Blown Ceiling Insul.	17	16	13	0	0	0	16	4	18,815	2.1	2,523	2.9	4,231	6,754	6	548	0	0	1,107	0.131	0.717	1,058	422	0.48	42	-	-				
Cavity Fill Insul.	2	1	2	0	0	0	1	0	1,715	0.1	95	0.0	0	95	2	173	0	0	858	0.079	0.000	0	95	0.98	86	-	-				
Sloped Attic Insul.	6	4	4	0	0	0	4	2	3,762	0.3	337	0.8	1,173	1,510	2	182	0	0	627	0.070	0.398	586	377	0.52	46	-	-				
Kneewall Insul.	0	0	0	0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-				
Infil. Reduction	21	20	15	1	0	0	20	5	19,572	0.3	399	0.8	1,181	1,580	4	336	23	0	932	0.017	0.160	236	79	0.25	22	23	-				
Found/Crawl. Insul.	5	4	3	0	0	0	3	2	5,146	0.2	241	0.9	1,367	1,608	0	31	0	0	1,029	0.067	0.463	683	402	0.12	10	-	-				
Bandjoist Insul.	8	2	6	0	0	0	-	2	1,423	0.0	0	0.1	179	179	0	27	0	0	178	0.000	0.061	90	90	0.05	4	-	-				
Furnace Blower Fan¹	16	16	15	1	0	0	-	16	0	0.0	0	1.3	1,879	1,879	(0)	(6)	(0)	0	0	0.000	0.080	117	117	(0.00)	(0)	(0)	-				
Exhaust Ventilation²	14	14	9	1	0	0	14	14	20,919	-0.1	(411)	(1.1)	(1,650)	(2,061)	(1)	(48)	(6)	0	1,494	-0.004	(29)	(0.080)	(118)	(147)	(0.06)	(5)	(6)	-			
Total Heating System Repl	13	2	10	1	0	0	-	2	72,250	0.0	0	0.1	172	172	16	1,377	125	0	5,558	0.000	0	0.058	86	86	1.56	138	125	-			
Condensing Htg Sys Repl	11	0	10	1	0	0	-	-	55,925	0.0	0	0.0	0	0	16	1,377	125	0	5,084	-	-	-	-	1.56	138	125	-				
Non-Cond Htg Sys Repl	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	6,000	0.0	0	0.1	99	99	0	0	0	0	6,000	0.000	0	0.067	99	99	-	-	-	-			
Heat Pump Repl	1	1	0	0	0	0	-	1	10,325	0.0	0	0.0	73	73	0	0	0	0	10,325	0.000	0	0.049	73	73	-	-	-	-			
Other Htg Sys Repl	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						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	19	9	9	1	0	0	46	26	19	1	0	0	0	0	23,603	0.0	0.0	2,045	0.5	104	13	0	0	1,242	0.000	0.004	227	0.056	12	-	-
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	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	0	-	-	-	-	-	-	
Pipe Insul.	14	8	6	0	0	0	14	8	6	0	0	0	0	0	128	0.0	0.0	346	0.1	18	0	0	0	9	0.000	0.000	0	43	0.01	3	-
LF Showerhead	8	5	3	0	0	0	8	5	3	0	0	0	0	0	46	0.0	0.0	883	0.1	22	0	0	0	6	0.000	0.004	177	0.02	7	-	-
Faucet Aerator	7	4	3	0	0	0	13	9	4	0	0	0	0	0	38	0.0	0.0	298	0.0	6	0	0	0	5	0.000	0.002	75	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	0	-	-	-	-	-	-	
Hi-Eff or Electric Wtr Htr Repl.	11	4	6	1	0	0	11	4	6	1	0	0	0	0	23,990	0.0	0.0	518	0.4	58	13	0	0	2,126	0.000	0.003	130	0.06	10	13	-
Lighting	13	13	0	0	0	0	96	96	0	0	0	0	0	0	253	0.3	0.5	2,563	-	-	-	-	-	19	0.021	0.038	197	-	-	-	-
Refrigerator/Freezer³	4	4	0	0	0	0	5	5	0	0	0	0	0	0	3,435	0.3	0.3	2,681	-	-	-	-	-	859	0.082	0.077	670	-	-	-	-
Refrigerator Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	
Refrigerator Exchange	2	2	0	0	0	0	2	2	0	0	0	0	0	0	1,720	0.1	0.1	1,032	-	-	-	-	-	870	0.063	0.059	516	-	-	-	-
Freezer Removal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	-	-	-	-	-	0	-	-	-	-	-	-	
Freezer Exchange	3	3	0	0	0	0	3	3	0	0	0	0	0	0	1,715	0.2	0.2	1,649	-	-	-	-	-	582	0.068	0.063	550	-	-	-	-
Total Non-Efficiency Measures	21	0	0	0	0	0	0	0	137,482	0	0	0	0	0	0	0	0	0	6,547	0	0	0	0	0	0	0	0	0	0	0	0
Misc Ins./Attic Access/Vent	18	0	0	0	0	0	0	0	7,880	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Duct Sealing	1	0	0	0	0	0	0	0	1,300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Duct Insulation	1	0	0	0	0	0	0	0	53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Damming Material	10	0	0	0	0	0	0	0	673	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Htg. Sys. Tune & Clean	10	0	0	0	0	0	0	0	2,794	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Htg. Sys./WH Other	2	0	0	0	0	0	0	0	4,975	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Air Conditioning Work	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	0	0	0	0	0	0
Water Heater Repair	1	0	0	0	0	0	0	0	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Refrigerator Coil Clean	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	0	0	0	0	0	0
Waterbed Mattress Pad	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	0	0	0	0	0	0
Programmable Tstat	1	0																													

Upper Des Moines Opportunity
Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$891,445
 Utility Administration Expenditures: -
 Total Labor and Material Expenditures: \$891,445

Measure	Number of Dwellings with Impacts						Number of Dwellings with kWh Impacts						Billing Adjusted First-Year Savings										Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures								
	Total	Electric	Gas	Propane	Fuel Oil	Other	Season		Spending on Materials & Labor (\$)	Electricity			Gas			Spending on Materials & Labor (\$)	Electricity			Gas			Propane gallons	Fuel Oil gallons	Other Mbtu						
							Cooling	Heating		Summer kW	Winter kWh	Annual kWh	Pk-Day therms	Annual therms	Propane gallons		Fuel Oil gallons	Other Mbtu	Summer kW	Winter kWh	Annual kWh	Pk-Day therms				Annual therms					
Total Efficiency Measures	68	68	58	7	0	0	68	68	508,135	17.7	16.4	71,824	129	12,792	2,252	0	0	7,473	0.260	0.242	1,056	2.22	221	322	-	-					
Total Shell & Htg. Sys. Repl	68	68	58	7	0	0	67	67	415,198	13.7	15,638	9.6	15,728	31,366	126	12,296	2,213	0	6,106	0.204	233	0.144	235	461	2.18	212	316	-	-		
Total Shell Measures	68	68	58	7	0	0	67	67	293,579	13.7	15,638	9.5	15,479	31,117	74	7,216	1,548	0	4,317	0.204	233	0.142	231	458	1.28	124	221	-	-		
Wall Insul.	47	45	40	6	0	0	45	1	103,816	5.5	6,575	1.3	2,196	8,771	35	3,411	720	0	2,209	0.121	146	1.346	2,196	195	0.88	85	120	-	-		
Open Blown Ceiling Insul.	61	59	51	7	0	0	59	3	41,147	3.7	4,468	3.4	5,626	10,095	10	1,000	267	0	675	0.063	76	1.150	1,875	171	0.20	20	38	-	-		
Cavity Fill Insul.	22	21	18	4	0	0	21	0	15,784	1.2	1,466	0.0	0	1,466	8	807	80	0	717	0.058	70	0.000	0	70	0.46	45	20	-	-		
Sloped Attic Insul.	30	28	23	6	0	0	28	1	15,777	1.9	2,347	0.7	1,105	3,452	10	1,015	266	0	526	0.070	84	0.677	1,105	123	0.45	44	44	-	-		
Kneewall Insul.	12	12	10	2	0	0	12	0	2,553	0.2	240	0.0	0	240	1	119	36	0	213	0.017	20	0.000	0	20	0.12	12	18	-	-		
Infil. Reduction	67	65	57	7	0	0	65	3	35,612	1.0	1,151	0.3	508	1,659	8	771	100	0	532	0.015	18	0.104	169	26	0.14	14	14	-	-		
Found/Crawl. Insul.	25	6	18	6	0	0	6	1	14,706	0.3	371	0.2	321	692	1	127	60	0	586	0.051	62	0.197	321	115	0.07	7	10	-	-		
Bandjoist Insul.	47	2	38	7	0	0	-	2	13,497	0.0	0	0.1	177	177	2	184	42	0	287	0.000	0	0.054	88	88	0.05	5	6	-	-		
Furnace Blower Fan ¹	64	59	57	7	0	0	-	59	0	0.0	0	4.4	7,149	7,149	(0)	(27)	(5)	0	0	0.000	0	0.074	121	121	(0.00)	(0)	(1)	-	-		
Exhaust Ventilation ²	41	41	36	3	0	0	41	41	50,688	-0.1	(982)	(1.0)	(1,602)	(2,583)	(2)	(192)	(17)	0	1,236	-0.003	(24)	(0.024)	(39)	(63)	(0.05)	(5)	(6)	-	-		
Total Heating System Repl	49	2	43	4	0	0	-	2	121,619	0.0	0	0.2	249	(249)	52	5,080	666	0	2,482	0.000	0	0.076	124	124	1.21	118	166	-	-		
Condensing Htg Sys Repl	47	0	43	4	0	0	-	-	116,119	0.0	0	0.0	0	0	52	5,080	666	0	2,471	0.000	0	0.076	124	124	1.21	118	166	-	-		
Non-Cond Htg Sys Repl	0	0	0	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-		
Electric Htg Sys Repl	2	2	0	0	0	0	-	2	5,500	0.0	0	0.2	249	249	0	0	0	0	2,750	0.000	0	0.076	124	124	-	-	-	-	-		
Heat Pump Repl	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	-	-	-	-	-	-	-	-	-	-		
Water Heating	Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Measures Installed by Fuel Type						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			
							Total	Electric	Gas	Propane	Fuel Oil	Other																			
Temp. Reduct.	11	3	8	0	0	0	11	3	8	0	0	0	0	0	0	0	0	0	0	0	0.000	0.000	116	0.02	8	-	-	-	-		
WH Wrap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-		
Pipe Insul.	68	24	41	3	0	0	68	24	41	3	0	0	0	0	0	0	0	0	20	0.000	0.000	43	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.	57	14	40	3	0	0	57	14	40	3	0	0	0	0	0	0	0	0	1,329	0.000	0.003	130	0.05	8	10	-	-	-	-		
Lighting	63	63	706	706	0	0	706	706	4,928	3.3	6.0	31,032	-	-	-	-	-	-	78	0.052	0.096	493	-	-	-	-	-	-	-		
Refrigerator/Freezer³	12	12	0	0	0	0	12	12	10,862	0.8	0.7	6,227	-	-	-	-	-	-	905	0.064	0.060	519	-	-	-	-	-	-	-		
Refrigerator Removal	0	0	0	0	0	0	0	0	0	0.0	0.0	0	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-		
Refrigerator Exchange	11	11	0	0	0	0	11	11	10,527	0.7	0.7	5,677	-	-	-	-	-	-	957	0.063	0.059	516	-	-	-	-	-	-	-		
Freezer Removal	0	0	0	0	0	0	0	0	0	0.0	0.0	0	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-		
Freezer Exchange	1	1	0	0	0	0	1	1	335	0.1	0.1	550	-	-	-	-	-	-	335	0.068	0.063	550	-	-	-	-	-	-	-		
Total Non-Efficiency Measures	68	68	68	68	68	68	68	68	383,309	0	0	0	0	0	0	0	0	0	5,637	0	0	0	0	0	0	0	0	0	0		
Misc Ins./Attic Access/Vent	64	0	0	0	0	0	64	0	9,066	0	0	0	0	0	0	0	0	0	142	0	0	0	0	0	0	0	0	0	0		
Duct Sealing	2	0	0	0	0	0	2	0	380	0	0	0	0	0	0	0	0	0	190	0	0	0	0	0	0	0	0	0	0		
Duct Insulation	20	0	0	0	0	0	20	0	1,444	0	0	0	0	0	0	0	0	0	72	0	0	0	0	0	0	0	0	0	0		
Damming Material	41	0	0	0	0	0	41	0	1,774	0	0	0	0	0	0	0	0	0	43	0	0	0	0	0	0	0	0	0	0		
Htg. Sys. Tune & Clean	67	0	0	0	0	0	67	0	15,025	0	0	0	0	0	0	0	0	0	224	0	0	0	0	0	0	0	0	0	0		
Htg. Sys./WH Other	16	0	0	0	0	0	16	0	5,762	0	0	0	0	0	0	0	0	0	360	0	0	0	0	0	0	0	0	0	0		
Air Conditioning Work	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	0	0	0	0		
Water Heater Repair	7	0	0	0	0	0	7	0	545	0	0	0	0	0	0	0	0	0	78	0	0	0	0	0	0	0	0	0	0		
Refrigerator Coil Clean	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	0	0	0	0		
Waterbed Mattress Pad	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	0	0	0	0		
Programmable Tstat	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	0	0	0	0		
Unspecified Utility Meas.	0	0	0	0</																											

Des Moines County Community Action
Billing Adjusted Costs and Impacts for All Measures Installed During Calendar Year 2018

Total Reported Labor, Materials and Utility Admin Expenditures: **\$2,420,074**
 Utility Administration Expenditures: -
 Total Labor and Material Expenditures: **\$2,420,074**

Measure	Number of Dwellings with Impacts						Number of Dwellings with kWh Impacts						Spending on Materials & Labor (\$)	Billing Adjusted First-Year Savings										Average Billing Adjusted First Year Costs and Savings per Dwelling Receiving Measures									
	Total	Electric	Gas	Propane	Fuel Oil	Other	Season		Summer kW	Winter kWh	Annual kWh	Gas		Propane gallons	Fuel Oil gallons	Other Mbtu	Spending on Materials & Labor (\$)	Electricity		Annual kWh	Gas		Propane gallons	Fuel Oil gallons	Other Mbtu								
							Cooling	Heating				Pk-Day therms						Annual therms	Summer kW		Winter kWh	Pk-Day therms				Annual therms							
Total Efficiency Measures	179	179	170	1	0	0	179	179	1,345,006	42.2	31.0	117,779	437	40,262	95	0	0	7,514	0.236	0.173	658	2.57	237	95	-	-							
Total Shell & Htg. Sys. Repl	179	179	170	1	0	0	179	179	1,085,051	38.4	42,770	25.4	37,908	80,678	426	37,938	95	0	0	6,062	0.215	239	0.142	212	451	2.51	223	95	-	-			
Total Shell Measures	179	179	170	1	0	0	179	179	835,963	38.4	42,770	25.4	37,908	80,678	299	26,583	29	0	0	4,670	0.215	239	0.142	212	451	1.76	156	29	-	-			
Wall Insul.	118	101	115	0	0	0	101	3	207,896	15.7	18,909	1.3	1,986	20,895	79	7,008	0	0	1,762	0.155	187	0.446	662	207	0.69	61	-	-	-				
Open Blown Ceiling Insul.	145	129	138	0	0	0	129	7	150,339	13.1	15,837	5.7	8,645	24,482	105	9,334	0	0	1,037	0.102	123	0.817	1,235	190	0.76	68	-	-	-				
Cavity Fill Insul.	100	85	95	0	0	0	85	5	75,443	3.7	4,463	2.7	4,038	8,501	63	5,525	0	0	754	0.044	53	0.550	808	100	0.66	58	-	-	-				
Sloped Attic Insul.	41	37	41	0	0	0	37	0	21,254	1.5	1,754	0.0	0	1,754	13	1,177	0	0	518	0.039	47	0.000	0	47	0.32	29	-	-	-				
Kneewall Insul.	61	50	59	0	0	0	50	2	22,775	1.3	1,513	0.2	374	1,887	11	1,009	0	0	373	0.025	30	0.123	187	38	0.19	17	-	-	-				
Infil. Reduction	178	155	169	1	0	0	155	8	162,277	2.9	3,521	0.4	558	4,079	25	2,231	35	0	912	0.019	23	0.047	70	26	0.15	13	35	-	-				
Found/Crawl. Insul.	74	13	72	0	0	0	12	2	62,629	0.8	997	0.4	613	1,610	14	1,231	0	0	846	0.069	83	0.204	307	124	0.19	17	-	-	-				
Bandjoist Insul.	15	1	14	0	0	0	-	1	2,807	0.0	0	0.1	97	97	1	74	0	0	187	0.000	0	0.066	97	97	0.06	5	-	-	-				
Furnace Blower Fan ¹	171	171	170	1	0	0	-	171	0	0.0	0	19.0	28,301	28,301	(1)	(110)	(1)	0	0	0.000	0	0.111	166	166	(0.01)	(1)	(1)	-	-				
Exhaust Ventilation ²	177	177	168	1	0	0	177	177	130,545	-0.5	(4,224)	(4.5)	(6,703)	(10,927)	(10)	(896)	(6)	0	738	-0.003	(24)	(0.025)	(38)	(62)	(0.06)	(6)	(6)	-	-				
Total Heating System Repl	115	0	114	1	0	0	-	0	249,088	0.0	0	0.0	0	0	127	11,355	66	0	2,166	-	-	-	-	-	1.11	100	66	-	-				
Condensing Htg Sys Repl	101	0	101	0	0	0	-	-	219,470	0.0	0	0.0	0	0	117	10,444	0	0	2,173	-	-	-	-	-	1.16	103	-	-	-				
Non-Cond Htg Sys Repl	14	0	13	1	0	0	-	-	29,618	0.0	0	0.0	0	0	10	911	66	0	2,116	-	-	-	-	-	0.78	70	66	-	-				
Electric Htg Sys Repl	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	-	-	-	-	-	-	-	-	-	-				
Other Htg Sys Repl	0	0	0	0	0	0	-	-	0	0.0	0	0.0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-				
Water Heating	Total	Electric	Gas	Propane	Fuel Oil	Other	Number of Measures Installed by Fuel Type						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					
	179	20	159	0	0	0	Total	Electric	Gas	Propane	Fuel Oil	Other																	599	52	547	0	0
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	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	0	0	0	0	0	0		
Pipe Insul.	176	18	158	0	0	0	176	18	158	0	0	0	0	0	0	0	0	0	3,376	0.0	0.0	778	1.4	475	0	0	0	19	0.000	0.000	43	0.01	3
LF Showerhead	57	7	50	0	0	0	71	7	64	0	0	0	0	0	0	0	0	0	695	0.0	0.0	1,236	1.2	364	0	0	12	0.000	0.004	177	0.02	7	
Faucet Aerator	131	13	118	0	0	0	218	23	195	0	0	0	0	0	0	0	0	0	1,074	0.0	0.0	762	0.9	278	0	0	8	0.000	0.001	59	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	0	0	0	0	0	0		
Hi-Eff or Electric Wtr Htr Repl.	134	4	130	0	0	0	134	4	130	0	0	0	0	0	0	0	0	0	232,945	0.0	0.0	518	7.4	1,206	0	0	1,738	0.000	0.003	130	0.06	9	
Lighting	130	130	130	0	0	0	1,356	1,356	8,722	2.2	4.1	21,287	-	-	-	-	-	-	87	0.017	0.032	164	-	-	-	-	67	0.017	0.032	164	-	-	
Refrigerator/Freezer³	22	22	22	0	0	0	24	24	13,143	1.5	1.4	12,521	-	-	-	-	-	-	597	0.070	0.065	569	-	-	-	-	597	0.070	0.065	569	-	-	
Refrigerator Removal	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	0	0	0	0	0	0	0	0	0	
Refrigerator Exchange	20	20	20	0	0	0	20	20	11,711	1.3	1.2	10,322	-	-	-	-	-	-	586	0.063	0.059	516	-	-	-	-	586	0.063	0.059	516	-	-	
Freezer Removal	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	0	0	0	0	0	0	0	0	0	
Freezer Exchange	4	4	4	0	0	0	4	4	1,432	0.3	0.3	2,198	-	-	-	-	-	-	358	0.068	0.063	550	-	-	-	-	358	0.068	0.063	550	-	-	
Total Non-Efficiency Measures	179	0	179	0	0	0	1,075,067	0	0	0	0	0	0	0	0	0	0	0	6,006	0	0	0	0	0	0	0	0	0	0	0	0		
Misc Ins./Attic Access/Vent	166	0	0	0	0	0	58,525	0	0	0	0	0	0	0	0	0	0	0	353	0	0	0	0	0	0	0	353	0	0	0	0		
Duct Sealing	58	0	0	0	0	0	12,981	0	0	0	0	0	0	0	0	0	0	0	224	0	0	0	0	0	0	0	224	0	0	0	0		
Duct Insulation	163	0	0	0	0	0	16,028	0	0	0	0	0	0	0	0	0	0	0	98	0	0	0	0	0	0	0	98	0	0	0	0		
Damming Material	123	0	0	0	0	0	19,410	0	0	0	0	0	0	0	0	0	0	0	158	0	0	0	0	0	0	0	158	0	0	0	0		
Htg. Sys. Tune & Clean	44	0	0	0	0	0	18,446	0	0	0	0	0	0	0	0	0	0	0	419	0	0	0	0	0	0	0	419	0	0	0	0		
Htg. Sys./WH Other	26	0	0	0	0	0	23,369	0	0	0	0	0	0	0	0	0	0	0	899	0	0	0	0	0	0	0	899	0	0	0	0		
Air Conditioning Work	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	0	0	0	0	0	0		
Water Heater Repair	3	0	0	0	0	0																											

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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 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$254,325

Utility Administration Expenditures: -

Total Labor and Material Expenditures: \$254,325

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									
	Total	Electric	Gas	Cooling	Heating	Summer kW		Electricity		Annual kWh	Pk-Day therms	Gas Annual therms	Spending on Materials & Labor (\$)	Electricity		Annual kWh	Pk-Day therms	Gas Annual therms				
								Summer kWh	Winter kWh					Summer kWh	Winter kWh							
Total Efficiency Measures	46	45	36	45	45		200,414	9.7	17.2	45,641	67	6,244	4,357	0.215	0.381	1,014	1.86	173				
Total Shell & Htg. Sys. Repl	46	44	36	43	44		167,636	8.6	10,331	15.1	23,135	33,466	66	5,989	3,644	0.199	240	0.344	526	761	1.82	166
Total Shell Measures	46	44	36	43	44		91,469	8.6	10,331	15.1	23,029	33,360	35	3,207	1,988	0.199	240	0.342	523	758	0.98	89
Wall Insul.	17	17	11	16	6		15,246	2.3	2,784	3.7	5,672	8,456	6	557	897	0.144	174	0.618	945	497	0.56	51
Open Blown Ceiling Insul.	38	37	28	36	7		27,592	3.1	3,777	6.3	9,663	13,440	9	819	726	0.087	105	0.903	1,380	363	0.32	29
Cavity Fill Insul.	11	10	9	10	2		9,489	0.9	1,099	0.5	832	1,931	7	655	863	0.091	110	0.272	416	193	0.80	73
Sloped Attic Insul.	15	13	10	12	3		5,509	1.1	1,300	2.3	3,455	4,755	5	496	367	0.090	108	0.753	1,152	366	0.54	50
Kneewall Insul.	8	7	6	6	1		2,301	0.0	59	0.1	198	257	0	45	288	0.008	10	0.130	198	37	0.08	7
Infil. Reduction	46	34	32	33	7		17,729	0.3	416	0.4	631	1,047	3	292	385	0.010	13	0.059	90	31	0.10	9
Found./Crawl. Insul.	19	14	15	12	4		8,852	0.7	896	0.5	819	1,715	2	169	466	0.062	75	0.134	205	122	0.12	11
Bandjoist Insul.	27	1	26	-	1		4,750	0.0	0	0.0	60	60	2	182	176	0.000	0	0.039	60	60	0.08	7
Furnace Blower Fan ¹	39	37	36	-	37		0	0.0	0	1.1	1,699	1,699	(0)	(7)	0	0.000	0	0.030	46	46	(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	28	1	27	-	1		76,167	0.0	0	0.1	106	106	30	2,781	2,720	0.000	0	0.069	106	106	1.13	103
Condensing Htg Sys Repl	27	0	27	-	-		72,667	0.0	0	0.0	0	0	30	2,781	2,691	-	-	-	-	-	1.13	103
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	106	106	0	0	3,500	0.000	0	0.069	106	106	-	-
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				Summer kW	Winter kW		Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW		Annual kWh	Pk-Day therms	Annual therms		
Water Heating	43	15	28	82	28	54	30,434	0.0	0.0	1,737	1.2	255	708	0.000	0.002	116	0.044	9				
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.	21	8	13	21	8	13	330	0.0	0.0	346	0.1	39	16	0.000	0.000	43	0.01	3				
LF Showerhead	8	2	6	8	2	6	80	0.0	0.0	353	0.1	44	10	0.000	0.004	177	0.02	7				
Faucet Aerator	22	9	13	34	14	20	170	0.0	0.0	464	0.1	29	8	0.000	0.001	52	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.	22	5	17	19	4	15	29,854	0.0	0.0	575	0.9	144	1,357	0.000	0.003	115	0.05	8				
Lighting	33	33		227	227		1,605	1.0	1.9	9,921	-	-	49	0.032	0.058	301	-	-				
Refrigerator/Freezer³	1	1		1	1		739	0.1	0.1	516	-	-	739	0.063	0.059	516	-	-				
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-				
Refrigerator Exchange	1	1		1	1		739	0.1	0.1	516	-	-	739	0.063	0.059	516	-	-				
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						53,911						1,172									
Misc Ins,Attic Access/Vent	36						4,357						121									
Duct Sealing	3						527						176									
Duct Insulation	11						900						82									
Damming Material	0						0						0									
Htg. Sys. Tune & Clean	4						458						115									
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	23						4,550						198									
Water Heater Ventilation	18						2,918						162									
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						951						79									
Health/Safety Other	0						0						0									
Consumables	0						0						0									
General Repairs	42						12,479						297									
Meter Refrig (no action)	0						0						0									
Meter Freezer (no action)	0						0						0									
Support	46						26,771						582									
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									
Unspecified/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 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$661,924

Utility Administration Expenditures: -

Total Labor and Material Expenditures: \$661,924

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										
	Total	Electric	Gas	Cooling	Heating		Electricity		Annual kWh	Gas		Spending on Materials & Labor (\$)	Electricity		Gas							
							Summer kWh	Winter kWh		Pk-Day therms	Annual therms		Summer kWh	Winter kWh	Annual kWh	Pk-Day therms	Annual therms					
Total Efficiency Measures	114	106	93	104	106	535,672	16.9	14.4	66,718	174	16,320	4,699	0.162	0.136	629	1.87	175					
Total Shell & Htg. Sys. Repl	112	90	93	79	90	425,202	12.9	15,588	8.2	12,622	28,211	171	15,702	3,796	0.164	197	0.091	140	313	1.84	169	
Total Shell Measures	112	90	93	79	90	284,605	12.9	15,588	8.2	12,622	28,211	103	9,422	2,541	0.164	197	0.091	140	313	1.10	101	
Wall Insul.	44	39	40	39	2	111,723	4.6	5,535	1.5	2,261	7,796	28	2,597	2,539	0.118	142	0.734	1,131	200	0.71	65	
Open Blown Ceiling Insul.	75	64	63	64	4	65,433	6.2	7,484	3.0	4,614	12,097	46	4,258	872	0.097	117	0.749	1,153	189	0.74	68	
Cavity Fill Insul.	11	9	10	9	1	8,789	0.4	523	0.2	261	783	6	544	799	0.048	58	0.169	261	87	0.59	54	
Sloped Attic Insul.	16	14	11	14	1	9,863	0.6	705	0.3	427	1,133	5	427	616	0.042	50	0.278	427	81	0.42	39	
Kneewall Insul.	16	13	13	13	1	6,013	0.2	248	0.1	116	364	1	123	376	0.016	19	0.075	116	28	0.10	9	
Infil. Reduction	95	36	89	35	6	38,687	0.2	290	0.5	811	1,102	8	703	407	0.007	8	0.088	135	31	0.09	8	
Found./Crawl. Insul.	44	13	41	13	1	29,107	0.7	804	0.1	201	1,005	7	620	662	0.051	62	0.131	201	77	0.16	15	
Bandjoist Insul.	44	3	41	-	3	14,991	0.0	0	0.1	203	203	2	174	341	0.000	0	0.044	68	68	0.05	4	
Furnace Blower Fan ¹	106	84	93	-	84	0	0.0	0	2.4	3,728	3,728	(0)	(24)	0	0.000	0	0.029	44	44	(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	56	0	56	-	0	140,596	0.0	0	0.0	0	0	68	6,280	2,511	-	-	-	-	-	-	1.22	112
Condensing Htg Sys Repl	56	0	56	-	-	140,596	0.0	0	0.0	0	0	68	6,280	2,511	-	-	-	-	-	-	1.22	112
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				Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms				
Water Heating	100	32	68	154	41	113	95,071	0.0	0.0	2,579	3.1	618	951	0.000	0.001	81	0.046	9				
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.	100	32	68	100	32	68	1,774	0.0	0.0	1,382	0.6	204	18	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.	66	11	55	54	9	45	93,296	0.0	0.0	1,197	2.5	414	1,414	0.000	0.003	109	0.05	8				
Lighting	82	82	596	596	4,199	2.7	5.0	25,698	-	-	51	0.033	0.061	313	-	-	-	-	-	-	-	-
Refrigerator/Freezer³	20	20	20	20	11,201	1.3	1.2	10,230	-	-	560	0.063	0.059	512	-	-	-	-	-	-	-	-
Refrigerator Removal	0	0	0	0	0	0	0.0	0.0	0	0	0	-	-	0	-	-	-	-	-	-	-	-
Refrigerator Exchange	20	20	20	20	11,201	1.3	1.2	10,230	-	-	560	0.063	0.059	512	-	-	-	-	-	-	-	-
Freezer Removal	0	0	0	0	0	0	0.0	0.0	0	0	0	-	-	0	-	-	-	-	-	-	-	-
Freezer Exchange	0	0	0	0	0	0	0.0	0.0	0	0	0	-	-	0	-	-	-	-	-	-	-	-
Total Non-Efficiency Measures	113					126,252						1,117										
Misc Ins. Attic Access/Vent	19					3,106																163
Duct Sealing	39					9,300																238
Duct Insulation	0					0																0
Damming Material	0					0																0
Htg. Sys. Tune & Clean	41					3,677																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	50					8,183																164
Water Heater Ventilation	49					7,440																152
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					464																77
Health/Safety Other	0					0																0
Consumables	0					0																0
General Repairs	69					24,320																352
Meter Refrig (no action)	3					0																0
Meter Freezer (no action)	4					0																0
Support	113					69,762																617
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																					

**Community Action of Eastern Iowa
Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2018**

Total Reported Labor, Materials and Utility Admin Expenditures: \$558,545

Utility Administration Expenditures: -

Total Labor and Material Expenditures: \$558,545

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										
	Total	Electric	Gas	Cooling	Heating	Summer kW		Electricity		Annual kWh	Gas		Spending on Materials & Labor (\$)	Electricity		Gas							
								Summer kWh	Winter kWh		Pk-Day therms	Annual therms		Summer kWh	Winter kWh	Annual kWh	Pk-Day therms	Annual therms					
Total Efficiency Measures	78	61	77	61	61		450,622	12.2	8.1	41,890	151	14,247	5,777	0.200	0.133	687	1.97	185					
Total Shell & Htg. Sys. Repl	78	61	77	61	61		368,241	9.8	11,861	4.4	6,828	18,690	148	13,646	4,721	0.161	194	0.073	112	306	1.93	177	
Total Shell Measures	78	61	77	61	61		199,915	9.8	11,861	4.4	6,828	18,690	82	7,528	2,563	0.161	194	0.073	112	306	1.06	98	
Wall Insul.	55	46	54	46	1		101,521	5.3	6,409	0.7	1,144	7,553	36	3,300	1,846	0.116	139	0.742	1,144	164	0.66	61	
Open Blown Ceiling Insul.	43	33	43	33	0		21,128	2.6	3,077	0.0	0	3,077	17	1,572	491	0.077	93	0.000	0	93	0.40	37	
Cavity Fill Insul.	25	14	24	13	1		14,738	0.8	935	0.8	1,276	2,211	13	1,235	590	0.060	72	0.828	1,276	158	0.56	51	
Sloped Attic Insul.	11	6	11	6	0		3,245	0.3	359	0.0	0	359	4	324	295	0.050	60	0.000	0	60	0.32	29	
Kneewall Insul.	14	5	14	5	0		6,524	0.2	190	0.0	0	190	2	181	466	0.032	38	0.000	0	38	0.14	13	
Infil. Reduction	78	61	77	61	1		37,413	0.3	396	0.1	94	490	7	621	480	0.005	6	0.061	94	8	0.09	8	
Found./Crawl. Insul.	16	8	16	8	0		12,463	0.4	495	0.0	0	495	3	290	779	0.051	62	0.000	0	62	0.20	18	
Bandjoist Insul.	12	0	12	-	0		2,882	0.0	0	0.0	0	0	0	24	240	-	-	-	-	-	0.02	2	
Furnace Blower Fan ¹	77	60	77	-	60		0	0.0	0	2.8	4,315	4,315	(0)	(18)	0	0.000	0	0.047	72	72	(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	58	0	58	-	0		168,326	0.0	0	0.0	0	0	67	6,118	2,902	-	-	-	-	-	-	1.15	105
Condensing Htg Sys Repl	58	0	58	-	-		168,326	0.0	0	0.0	0	0	67	6,118	2,902	-	-	-	-	-	-	1.15	105
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				Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms					
Water Heating	69	11	58	146	22	123	72,926	0.0	0.0	1,840	2.9	601	1,057	0.000	0.003	167	0.051	10					
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.	63	11	52	63	11	52	1,179	0.0	0.0	475	0.4	155	19	0.000	0.000	43	0.01	3					
LF Showerhead	11	4	7	11	4	7	110	0.0	0.0	706	0.2	51	10	0.000	0.004	177	0.02	7					
Faucet Aerator	20	3	17	26	3	23	130	0.0	0.0	99	0.1	33	7	0.000	0.001	33	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.	51	6	45	45	4	41	71,507	0.0	0.0	559	2.2	362	1,402	0.000	0.002	93	0.05	8					
Lighting	39	39		362	362		2,555	1.6	2.9	15,066	-	-	66	0.041	0.075	386	-	-					
Refrigerator/Freezer³	11	11		12	12		6,900	0.8	0.7	6,294	-	-	627	0.070	0.066	572	-	-					
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-					
Refrigerator Exchange	9	9		9	9		5,351	0.6	0.5	4,645	-	-	595	0.063	0.059	516	-	-					
Freezer Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-					
Freezer Exchange	3	3		3	3		1,549	0.2	0.2	1,649	-	-	516	0.068	0.063	550	-	-					
Total Non-Efficiency Measures	78						107,923						1,384										
Misc Ins,Attic Access/Vent	37						3,032						82										
Duct Sealing	4						863						216										
Duct Insulation	1						60						60										
Damming Material	0						0						0										
Htg. Sys. Tune & Clean	5						623						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	53						5,195						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	51						11,125						218										
Water Heater Ventilation	33						6,304						191										
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	10						782						78										
Health/Safety Other	0						0						0										
Consumables	0						0						0										
General Repairs	72						19,912						277										
Meter Refrig (no action)	50						0						0										
Meter Freezer (no action)	16						0						0										
Support	78						60,028						770										
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										
Unspecified/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 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$66,542

Utility Administration Expenditures: -

Total Labor and Material Expenditures: \$66,542

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										
	Total	Electric	Gas	Cooling	Heating	Summer kW		Electricity		Annual kWh	Pk-Day therms	Gas Annual therms	Spending on Materials & Labor (\$)	Electricity		Annual kWh	Pk-Day therms	Gas Annual therms					
								kWh	kWh					kWh	kWh								
Total Efficiency Measures	14	13	14	10	13		52,123	2.5	0.6	4,068	18	1,599	3,723	0.249	0.049	313	1.31	114					
Total Shell & Htg. Sys. Repl	14	13	14	10	13		44,852	2.5	2,977	0.6	880	3,857	18	1,558	3,204	0.247	298	0.047	68	297	1.29	111	
Total Shell Measures	14	13	14	10	13		31,552	2.5	2,977	0.6	880	3,857	12	1,017	2,254	0.247	298	0.047	68	297	0.84	73	
Wall Insul.	8	5	8	5	0		9,962	0.9	1,109	0.0	0	1,109	4	358	1,245	0.184	222	0.000	0	222	0.52	45	
Open Blown Ceiling Insul.	9	7	9	7	0		7,909	1.3	1,533	0.0	0	1,533	3	224	879	0.182	219	0.000	0	219	0.29	25	
Cavity Fill Insul.	2	0	2	0	0		2,267	0.0	0	0.0	0	0	1	45	1,133	-	-	-	-	-	0.26	23	
Sloped Attic Insul.	2	0	2	0	0		1,091	0.0	0	0.0	0	0	1	95	546	-	-	-	-	-	0.55	47	
Kneewall Insul.	4	1	4	1	0		939	0.0	15	0.0	0	15	1	47	235	0.012	15	0.000	0	15	0.14	12	
Infil. Reduction	13	10	13	10	0		4,440	0.1	128	0.0	0	128	1	63	342	0.011	13	0.000	0	13	0.06	5	
Found./Crawl. Insul.	7	2	7	2	0		4,594	0.2	192	0.0	0	192	2	167	656	0.080	96	0.000	0	96	0.28	24	
Bandjoist Insul.	3	0	3	-	0		351	0.0	0	0.0	0	0	0	20	117	-	-	-	-	-	0.08	7	
Furnace Blower Fan ¹	14	13	14	-	13		0	0.0	0	0.6	880	880	(0)	(3)	0	0.000	0	0.047	68	68	(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	5	0	5	-	0		13,300	0.0	0	0.0	0	0	6	541	2,660	-	-	-	-	-	-	1.26	108
Condensing Htg Sys Repl	5	0	5	-	-		13,300	0.0	0	0.0	0	0	6	541	2,660	-	-	-	-	-	-	1.26	108
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				Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms					
Water Heating	7	1	6	8	1	7	7,180	0.0	0.0	43	0.2	40	1,026	0.000	0.000	43	0.036	7					
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.	4	1	3	4	1	3	80	0.0	0.0	43	0.0	9	20	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.	5	0	5	4	0	4	7,100	0.0	0.0	0	0.2	31	1,420	-	-	-	0.04	6					
Lighting	2	2		13	13		91	0.0	0.0	167	-	-	46	0.009	0.016	83	-	-					
Refrigerator/Freezer³	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	15						14,419						961										
Misc Ins. Attic Access/Vent	6						1,555						259										
Duct Sealing	0						0						0										
Duct Insulation	1						95						95										
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	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	8						1,750						219										
Water Heater Ventilation	6						1,100						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	1						127						127										
Health/Safety Other	0						0						0										
Consumables	0						0						0										
General Repairs	11						3,945						359										
Meter Refrig (no action)	0						0						0										
Meter Freezer (no action)	0						0						0										
Support	14						5,847						418										
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										
Unspecified/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 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$362,048

Utility Administration Expenditures: -

Total Labor and Material Expenditures: \$362,048

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									
	Total	Electric	Gas	Cooling	Heating	Summer kW		Electricity		Annual kWh	Gas		Spending on Materials & Labor (\$)	Electricity		Gas						
								Winter kWh	Annual kWh		Pk-Day therms	Annual therms		Summer kW	Winter kWh	Annual kWh	Pk-Day therms	Annual therms				
Total Efficiency Measures	57	50	52	50	50		297,784	10.6	4.4	26,847	110	10,392	5,224	0.212	0.087	537	2.12	200				
Total Shell & Htg. Sys. Repl	57	50	52	50	50		252,817	9.5	11,463	2.6	4,094	15,556	108	10,104	4,435	0.190	229	0.052	82	311	2.09	194
Total Shell Measures	57	50	52	50	50		185,782	9.5	11,463	2.6	4,036	15,498	69	6,395	3,259	0.190	229	0.052	81	310	1.32	123
Wall Insul.	36	34	34	34	0		87,277	4.2	5,052	0.0	0	5,052	36	3,321	2,424	0.123	149	0.000	0	149	1.05	98
Open Blown Ceiling Insul.	42	39	39	39	1		28,133	3.2	3,919	0.2	242	4,161	9	837	670	0.083	100	0.155	242	107	0.23	21
Cavity Fill Insul.	13	8	12	8	0		18,021	0.6	745	0.0	0	745	10	890	1,386	0.077	93	0.000	0	93	0.80	74
Sloped Attic Insul.	13	12	12	12	0		4,141	0.6	771	0.0	0	771	4	360	319	0.053	64	0.000	0	64	0.32	30
Kneewall Insul.	16	13	16	13	0		7,747	0.2	255	0.0	0	255	1	126	484	0.016	20	0.000	0	20	0.08	8
Infil. Reduction	52	41	47	41	1		17,787	0.3	340	0.0	54	394	3	310	342	0.007	8	0.035	54	10	0.07	7
Found./Crawl. Insul.	32	6	31	6	0		18,974	0.3	380	0.0	0	380	5	474	593	0.052	63	0.000	0	63	0.16	15
Bandjoist Insul.	22	0	22	-	0		3,701	0.0	0	0.0	0	0	1	92	168	-	-	-	-	-	0.05	4
Furnace Blower Fan ¹	56	49	52	-	49		0	0.0	0	2.4	3,740	3,740	(0)	(15)	0	0.000	0	0.049	76	76	(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		67,036	0.0	0.0	58	58	40	3,709	2,095	0.000	0	0.037	58	58	1.28	120	
Condensing Htg Sys Repl	31	0	31	-	-		63,536	0.0	0.0	0	0	0	40	3,709	2,050	-	-	-	-	-	1.28	120
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	1	1	0	-	1		3,500	0.0	0.0	58	58	0	0	3,500	0.000	0	0.037	58	58	-	-	-
Other Htg Sys Repl	0	0	0	-	0		0	0.0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	-
	Total	Electric	Gas	Number of Measures by Fuel Type				Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms				
Water Heating	45	14	31	58	15	43	41,178	0.0	0.0	1,199	1.6	288	915	0.000	0.001	86	0.051	9				
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	9	15	24	9	15	170	0.0	0.0	389	0.1	45	7	0.000	0.000	43	0.01	3				
LF Showerhead	3	1	2	3	1	2	9	0.0	0.0	177	0.0	15	3	0.000	0.004	177	0.02	7				
Faucet Aerator	1	0	1	1	0	1	3	0.0	0.0	0	0.0	1	3	-	-	-	-	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.	31	5	26	30	5	25	40,995	0.0	0.0	634	1.4	226	1,322	0.000	0.003	127	0.05	9				
Lighting	17	17		183	183		489	0.7	1.4	6,995	-	-	29	0.043	0.080	411	-	-				
Refrigerator/Freezer³	6	6		6	6		3,300	0.4	0.4	3,097	-	-	590	0.063	0.059	516	-	-				
Refrigerator Removal	1	1		1	1		15	0.1	0.1	516	-	-	15	0.063	0.059	516	-	-				
Refrigerator Exchange	5	5		5	5		3,285	0.3	0.3	2,581	-	-	657	0.063	0.059	516	-	-				
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	57						64,264						1,127									
Misc Ins,Attic Access/Vent	40						9,498											237				
Duct Sealing	0						0											0				
Duct Insulation	0						0											0				
Damming Material	0						0											0				
Htg. Sys. Tune & Clean	8						688											86				
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						4,714											157				
Water Heater Ventilation	25						2,325											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	5						183											37				
Health/Safety Other	0						0											0				
Consumables	0						0											0				
General Repairs	51						13,944											273				
Meter Refrig (no action)	38						0											0				
Meter Freezer (no action)	14						0											0				
Support	57						32,914											577				
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				
Unspecified/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 2018**

Total Reported Labor, Materials and Utility Admin Expenditures: \$121,079

Utility Administration Expenditures: -

Total Labor and Material Expenditures: \$121,079

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										
	Total	Electric	Gas	Cooling	Heating	Summer kW		Electricity		Annual kWh	Gas		Spending on Materials & Labor (\$)	Electricity		Gas							
								kWh	kWh		Pk-Day therms	Annual therms		Summer kWh	Winter kWh	Annual kWh	Pk-Day therms	Annual therms					
Total Efficiency Measures	19	17	16	17	17		99,480	4.2	3.2	14,572	35	3,288	5,236	0.249	0.189	857	2.20	206					
Total Shell & Htg. Sys. Repl	19	16	15	16	16		78,955	3.5	4,206	1.9	2,890	7,096	35	3,151	4,156	0.218	263	0.118	181	443	2.30	210	
Total Shell Measures	19	16	15	16	16		50,671	3.5	4,206	1.9	2,890	7,096	19	1,731	2,667	0.218	263	0.118	181	443	1.27	115	
Wall Insul.	12	10	9	10	1		24,809	1.4	1,733	1.3	1,934	3,667	8	749	2,067	0.144	173	1.265	1,934	367	0.91	83	
Open Blown Ceiling Insul.	14	13	11	13	0		5,085	0.6	746	0.0	0	746	1	134	363	0.048	57	0.000	0	57	0.13	12	
Cavity Fill Insul.	7	5	5	5	0		4,710	0.3	388	0.0	0	388	4	358	673	0.064	78	0.000	0	78	0.78	72	
Sloped Attic Insul.	8	7	5	7	0		2,441	0.7	822	0.0	0	822	2	160	305	0.097	117	0.000	0	117	0.35	32	
Kneewall Insul.	3	3	3	3	0		740	0.0	47	0.0	0	47	0	25	247	0.013	16	0.000	0	16	0.09	8	
Infil. Reduction	19	11	15	11	1		4,157	0.1	178	0.0	56	234	2	179	219	0.013	16	0.036	56	21	0.13	12	
Found./Crawl. Insul.	11	5	10	4	1		6,416	0.2	291	0.1	80	371	1	94	583	0.060	73	0.052	80	74	0.10	9	
Bandjoist Insul.	10	1	9	-	1		2,313	0.0	0	0.0	30	30	0	36	231	0.000	0	0.020	30	30	0.04	4	
Furnace Blower Fan ¹	18	15	15	-	15		0	0.0	0	0.5	791	791	(0)	(4)	0	0.000	0	0.034	53	53	(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	11	0	11	-	0		28,284	0.0	0	0.0	0	0	16	1,419	2,571	-	-	-	-	-	-	1.41	129
Condensing Htg Sys Repl	11	0	11	-	-		28,284	0.0	0	0.0	0	0	16	1,419	2,571	-	-	-	-	-	-	1.41	129
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				Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms					
Water Heating	17	4	13	32	8	24	18,816	0.0	0.0	498	0.7	138	1,107	0.000	0.002	125	0.056	11					
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.	15	4	11	15	4	11	300	0.0	0.0	173	0.1	33	20	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	3	2	1	3	2	1	15	0.0	0.0	66	0.0	1	5	0.000	0.001	-	33	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.	15	2	13	14	2	12	18,501	0.0	0.0	259	0.6	103	1,233	0.000	0.003	-	130	0.05	8				
Lighting	13	13		147	147		1,029	0.7	1.3	6,461	-	-	79	0.052	0.096	497	-	-					
Refrigerator/Freezer³	1	1		1	1		680	0.1	0.1	516	-	-	680	0.063	0.059	516	-	-					
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-					
Refrigerator Exchange	1	1		1	1		680	0.1	0.1	516	-	-	680	0.063	0.059	516	-	-					
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	19						21,599						1,137										
Misc Ins,Attic Access/Vent	16						1,340						84										
Duct Sealing	1						160						160										
Duct Insulation	0						0						0										
Damming Material	0						0						0										
Htg. Sys. Tune & Clean	3						318						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	9						1,454						162										
Water Heater Ventilation	10						1,276						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	2						138						69										
Health/Safety Other	0						0						0										
Consumables	0						0						0										
General Repairs	17						4,547						267										
Meter Refrig (no action)	0						0						0										
Meter Freezer (no action)	0						0						0										
Support	19						12,366						651										
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										
Unspecified/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 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$136,620

Utility Administration Expenditures: -

Total Labor and Material Expenditures: \$136,620

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										
	Total	Electric	Gas	Cooling	Heating	Summer kW		Electricity		Annual kWh	Gas		Spending on Materials & Labor (\$)	Electricity		Gas							
								Winter kWh	Annual kWh		Pk-Day therms	Annual therms		Summer kW	Winter kWh	Annual kWh	Pk-Day therms	Annual therms					
Total Efficiency Measures	18	17	16	17	17		112,337	3.6	6.4	22,614	47	4,764	6,241	0.211	0.377	1,330	2.95	298					
Total Shell & Htg. Sys. Repl	18	17	16	14	17		85,874	2.2	2,662	4.3	7,068	9,730	46	4,549	4,771	0.158	190	0.252	416	572	2.88	284	
Total Shell Measures	18	17	16	14	17		57,168	2.2	2,662	4.3	7,068	9,730	33	3,245	3,176	0.158	190	0.252	416	572	2.06	203	
Wall Insul.	13	11	12	10	1		22,715	0.9	1,105	1.0	1,672	2,778	11	1,092	1,747	0.092	111	1,012	1,672	253	0.92	91	
Open Blown Ceiling Insul.	15	12	13	11	2		8,675	0.9	1,070	0.8	1,249	2,319	12	1,215	578	0.081	97	0.378	624	193	0.95	93	
Cavity Fill Insul.	7	6	6	5	1		8,506	0.1	84	1.0	1,633	1,718	2	174	1,215	0.014	17	0.989	1,633	286	0.29	29	
Sloped Attic Insul.	8	5	8	5	0		6,102	0.1	157	0.0	0	157	4	346	763	0.026	31	0.000	0	31	0.44	43	
Kneewall Insul.	3	2	3	2	0		2,802	0.1	64	0.0	0	64	1	120	934	0.026	32	0.000	0	32	0.41	40	
Infil. Reduction	18	15	16	14	2		6,921	0.1	152	0.1	178	330	3	257	384	0.009	11	0.054	89	22	0.16	16	
Found./Crawl. Insul.	7	1	7	1	0		1,447	0.0	29	0.0	0	29	1	51	207	0.024	29	0.000	0	29	0.07	7	
Bandjoist Insul.	0	0	0	-	0		0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-	
Furnace Blower Fan ¹	16	15	16	-	15		0	0.0	0	1.4	2,336	2,336	(0)	(10)	0	0.000	0	0.094	156	156	(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	11	0	11	-	0		28,706	0.0	0	0.0	0	0	13	1,304	2,610	-	-	-	-	-	-	1.20	119
Condensing Htg Sys Repl	11	0	11	-	-		28,706	0.0	0	0.0	0	0	13	1,304	2,610	-	-	-	-	-	-	1.20	119
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				Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms					
Water Heating	18	2	16	51	4	47	21,450	0.0	0.0	392	1.0	215	1,192	0.000	0.004	196	0.066	13					
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	2	15	17	2	15	63	0.0	0.0	86	0.1	45	4	0.000	0.000	43	0.01	3					
LF Showerhead	4	1	3	4	1	3	12	0.0	0.0	177	0.1	22	3	0.000	0.004	177	0.02	7					
Faucet Aerator	9	0	9	14	0	14	7	0.0	0.0	7	0.1	20	1	-	-	-	-	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.	16	1	15	16	1	15	21,367	0.0	0.0	130	0.8	128	1,335	0.000	0.003	130	0.05	9					
Lighting	15	15		201	201		873	0.9	1.7	8,778	-	-	58	0.061	0.114	585	-	-					
Refrigerator/Freezer³	7	7		7	7		4,140	0.5	0.4	3,713	-	-	591	0.065	0.061	530	-	-					
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-					
Refrigerator Exchange	4	4		4	4		2,700	0.3	0.2	2,064	-	-	675	0.063	0.059	516	-	-					
Freezer Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-					
Freezer Exchange	3	3		3	3		1,440	0.2	0.2	1,649	-	-	480	0.068	0.063	550	-	-					
Total Non-Efficiency Measures	18						24,284						1,349										
Misc Ins,Attic Access/Vent	8						1,201						150										
Duct Sealing	0						0						0										
Duct Insulation	0						0						0										
Damming Material	0						0						0										
Htg. Sys. Tune & Clean	7						840						120										
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	12						1,864						155										
Water Heater Ventilation	14						1,460						104										
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	16						21,367						1,335										
Health/Safety Other	0						0						0										
Consumables	0						0						0										
General Repairs	17						5,364						316										
Meter Refrig (no action)	0						0						0										
Meter Freezer (no action)	0						0						0										
Support	18						13,555						753										
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										
Unspecified/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 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$254,328

Utility Administration Expenditures: -

Total Labor and Material Expenditures: \$254,328

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									
	Total	Electric	Gas	Cooling	Heating		Electricity			Gas		Spending on Materials & Labor (\$)	Electricity			Gas					
							Summer kW	Winter kWh	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kWh	Annual kWh	Pk-Day therms	Annual therms				
Total Efficiency Measures	85	72	70	69	72	206,056	10.3	3.2	22,376	77	7,347	2,424	0.150	0.044	311	1.09	105				
Total Shell & Htg. Sys. Repl	84	72	67	65	72	153,241	9.7	11,747	2.3	3,668	15,415	75	6,961	1,824	0.150	181	0.033	51	214	1.12	104
Total Shell Measures	84	72	66	65	72	62,517	9.7	11,747	2.3	3,546	15,293	37	3,439	744	0.150	181	0.032	49	212	0.56	52
Wall Insul.	22	21	18	21	0	8,487	2.6	3,104	0.0	0	3,104	9	831	386	0.123	148	0.000	0	148	0.50	46
Open Blown Ceiling Insul.	55	53	44	53	1	16,634	4.9	5,933	0.4	691	6,625	9	827	302	0.093	112	0.443	691	125	0.20	19
Cavity Fill Insul.	1	1	1	1	0	368	0.1	137	0.0	0	137	1	76	368	0.114	137	0.000	0	137	0.82	76
Sloped Attic Insul.	17	14	15	14	0	3,628	1.2	1,413	0.0	0	1,413	11	985	213	0.084	101	0.000	0	101	0.71	66
Kneewall Insul.	4	3	4	3	0	1,426	0.0	47	0.0	0	47	1	68	356	0.013	16	0.000	0	16	0.18	17
Infil. Reduction	78	61	46	61	2	26,232	0.8	927	0.1	178	1,105	5	471	336	0.013	15	0.057	89	18	0.11	10
Found./Crawl. Insul.	6	3	5	3	0	2,919	0.2	185	0.0	0	185	1	123	486	0.051	62	0.000	0	62	0.26	25
Bandjoist Insul.	13	0	13	-	0	2,825	0.0	0	0.0	0	0	1	70	217	-	-	-	-	-	0.06	5
Furnace Blower Fan ¹	82	70	66	-	70	0	0.0	0	1.7	2,677	2,677	(0)	(13)	0	0.000	0	0.025	38	38	(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	36	1	35	-	1	90,724	0.0	0	0.1	122	122	38	3,521	2,520	0.000	0	0.078	122	122	1.08	101
Condensing Htg Sys Repl	35	0	35	-	-	88,826	0.0	0	0.0	0	0	38	3,521	2,538	-	-	-	-	-	1.08	101
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	1,897	0.0	0	0.1	122	122	0	0	1,897	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	-	-	-	-	-	-	-
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			Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms				
Water Heating	67	16	51	100	22	78	48,175	0.0	0.0	1,673	1.8	386	719	0.000	0.002	105	0.035	8			
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.	63	14	49	63	14	49	574	0.0	0.0	605	0.4	147	9	0.000	0.000	43	0.01	3			
LF Showerhead	5	1	4	5	1	4	25	0.0	0.0	177	0.1	29	5	0.000	0.004	177	0.02	7			
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.	35	7	28	32	7	25	47,576	0.0	0.0	891	1.3	209	1,359	0.000	0.003	127	0.05	7			
Lighting	26	26		128	128		856	0.3	0.5	2,740	-	-	33	0.011	0.020	105	-	-			
Refrigerator/Freezer³	5	5		5	5		3,783	0.3	0.3	2,549	-	-	757	0.063	0.059	510	-	-			
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-			
Refrigerator Exchange	5	5		5	5		3,783	0.3	0.3	2,549	-	-	757	0.063	0.059	510	-	-			
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	86						48,273						561								
Misc Ins,Attic Access/Vent	7						943						135								
Duct Sealing	0						0						0								
Duct Insulation	0						0						0								
Damming Material	0						0						0								
Htg. Sys. Tune & Clean	29						3,591						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	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	34						6,497						191								
Water Heater Ventilation	25						4,370						175								
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						52						17								
Health/Safety Other	0						0						0								
Consumables	0						0						0								
General Repairs	50						9,599						192								
Meter Refrig (no action)	7						0						0								
Meter Freezer (no action)	3						0						0								
Support	86						23,121						269								
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								
Unspecified/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 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$194,190

Utility Administration Expenditures: -

Total Labor and Material Expenditures: \$194,190

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										
	Total	Electric	Gas	Cooling	Heating	Summer kW		Electricity		Annual kWh	Pk-Day therms	Gas Annual therms	Spending on Materials & Labor (\$)	Electricity		Annual kWh	Pk-Day therms	Gas Annual therms					
								Winter kWh	Summer kWh					Winter kWh	Summer kWh								
Total Efficiency Measures	50	42	32	41	42		160,717	6.9	3.3	21,876	66	6,113	3,214	0.167	0.078	521	2.05	191					
Total Shell & Htg. Sys. Repl	50	42	32	36	42		137,694	5.4	6.565	0.9	1,415	7,980	65	5,972	2,754	0.151	182	0.022	34	190	2.03	187	
Total Shell Measures	50	42	32	36	42		101,271	5.4	6.565	0.9	1,415	7,980	43	3,974	2,025	0.151	182	0.022	34	190	1.35	124	
Wall Insul.	31	20	21	20	1		36,693	2.3	2,787	0.6	902	3,689	15	1,358	1,184	0.116	139	0.586	902	184	0.70	65	
Open Blown Ceiling Insul.	31	21	21	21	0		19,342	1.2	1,443	0.0	0	1,443	13	1,211	624	0.057	69	0.000	0	69	0.63	58	
Cavity Fill Insul.	20	13	14	13	0		18,436	1.0	1,250	0.0	0	1,250	11	1,049	922	0.080	96	0.000	0	96	0.82	75	
Sloped Attic Insul.	8	5	5	5	0		3,291	0.1	157	0.0	0	157	2	154	411	0.026	31	0.000	0	31	0.34	31	
Kneewall Insul.	8	5	7	5	0		1,934	0.1	82	0.0	0	82	1	64	242	0.014	16	0.000	0	16	0.10	9	
Infil. Reduction	44	36	8	36	1		16,834	0.4	538	0.0	62	600	1	76	383	0.012	15	0.040	62	17	0.10	10	
Found./Crawl. Insul.	7	5	5	5	0		4,617	0.3	309	0.0	0	309	1	66	660	0.051	62	0.000	0	62	0.14	13	
Bandjoist Insul.	2	0	2	-	0		124	0.0	0	0.0	0	0	0	1	62	-	-	-	-	-	0.01	1	
Furnace Blower Fan ¹	49	41	32	-	41		0	0.0	0	0.3	452	452	(0)	(6)	0	0.000	0	0.007	11	11	(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		36,423	0.0	0	0.0	0	0	22	1,998	2,428	-	-	-	-	-	-	1.45	133
Condensing Htg Sys Repl	15	0	15	-	-		36,423	0.0	0	0.0	0	0	22	1,998	2,428	-	-	-	-	-	-	1.45	133
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				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	17	18	44	18	26	16,751	0.0	0.0	864	0.7	141	479	0.000	0.000	51	0.039	8					
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	17	16	33	17	16	631	0.0	0.0	734	0.1	48	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	-	-	-	-	-					
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	1	11	11	1	10	16,120	0.0	0.0	130	0.6	93	1,343	0.000	0.003	130	0.05	8					
Lighting	38	38		249	249		1,714	1.1	2.1	10,571	-	-	45	0.029	0.054	278	-	-					
Refrigerator/Freezer³	5	5		5	5		4,558	0.3	0.3	2,460	-	-	912	0.061	0.057	492	-	-					
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-					
Refrigerator Exchange	4	4		3	3		3,258	0.2	0.2	1,691	-	-	815	0.052	0.049	423	-	-					
Freezer Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-					
Freezer Exchange	2	2		1	1		1,300	0.1	0.1	769	-	-	650	0.047	0.044	385	-	-					
Total Non-Efficiency Measures	50						33,472						669										
Misc Ins,Attic Access/Vent	40						3,303						83										
Duct Sealing	0						0						0										
Duct Insulation	0						0						0										
Damming Material	0						0						0										
Htg. Sys. Tune & Clean	11						928						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	17						3,799						223										
Water Heater Ventilation	9						1,874						208										
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						14						14										
Health/Safety Other	0						0						0										
Consumables	0						0						0										
General Repairs	38						5,924						156										
Meter Refrig (no action)	0						0						0										
Meter Freezer (no action)	0						0						0										
Support	50						17,631						353										
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										
Unspecified/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 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$216,900

Utility Administration Expenditures: -

Total Labor and Material Expenditures: \$216,900

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										
	Total	Electric	Gas	Cooling	Heating	Summer kW		Electricity		Annual kWh	Pk-Day therms	Gas Annual therms	Spending on Materials & Labor (\$)	Electricity		Annual kWh	Pk-Day therms	Gas Annual therms					
								Winter kWh	Summer kWh					Winter kWh	Summer kWh								
Total Efficiency Measures	30	22	28	22	22		178,779	4.2	2.2	11,645	73	6,886	5,959	0.191	0.099	529	2.60	246					
Total Shell & Htg. Sys. Repl	30	22	28	21	22		152,138	3.7	4,407	1.3	2,078	6,485	5,071	0.174	0.060	94	295	2.57	239				
Total Shell Measures	30	22	28	21	22		92,857	3.7	4,407	1.3	2,078	6,485	3,095	0.174	0.060	94	295	1.56	146				
Wall Insul.	8	8	8	8	0		13,101	1.0	1,201	0.0	0	1,201	4	416	1,638	0.125	150	0.000	0	150	0.56	52	
Open Blown Ceiling Insul.	24	20	24	20	0		26,728	1.0	1,203	0.0	0	1,203	8	713	1,114	0.050	60	0.000	0	60	0.32	30	
Cavity Fill Insul.	19	15	18	14	1		11,072	0.7	802	0.1	169	971	11	1,024	583	0.047	57	0.108	169	65	0.61	57	
Sloped Attic Insul.	12	8	12	8	0		9,350	0.6	666	0.0	0	666	11	984	779	0.069	83	0.000	0	83	0.88	82	
Kneewall Insul.	11	8	11	8	0		5,774	0.2	184	0.0	0	184	4	380	525	0.019	23	0.000	0	23	0.37	35	
Infil. Reduction	28	19	25	18	1		12,075	0.1	161	0.0	32	193	3	246	431	0.007	9	0.020	32	10	0.11	10	
Found./Crawl. Insul.	14	3	14	3	0		11,252	0.2	190	0.0	0	190	2	223	804	0.052	63	0.000	0	63	0.17	16	
Bandjoist Insul.	15	0	15	-	0		3,506	0.0	0	0.0	0	0	1	99	234	-	-	-	-	-	0.07	7	
Furnace Blower Fan ¹	29	21	28	-	21		0	0.0	0	1.2	1,877	1,877	(0)	(8)	0	0.000	0	0.057	89	89	(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	22	0	22	-	0		59,281	0.0	0	0.0	0	0	28	2,617	2,695	-	-	-	-	-	-	1.28	119
Condensing Htg Sys Repl	22	0	22	-	-		59,281	0.0	0	0.0	0	0	28	2,617	2,695	-	-	-	-	-	-	1.28	119
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				Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms					
Water Heating	23	3	20	36	3	33	24,204	0.0	0.0	130	1.0	191	1,052	0.000	0.000	43	0.049	10					
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.	21	3	18	21	3	18	185	0.0	0.0	130	0.2	54	9	0.000	0.000	43	0.01	3					
LF Showerhead	1	0	1	2	0	2	19	0.0	0.0	0	0.0	7	19	-	-	-	0.02	7					
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.	16	0	16	13	0	13	24,000	0.0	0.0	0	0.8	130	1,500	-	-	-	0.05	8					
Lighting	14	14		85	85		595	0.4	0.7	3,482	-	-	43	0.026	0.048	249	-	-					
Refrigerator/Freezer³	3	3		3	3		1,841	0.2	0.2	1,548	-	-	614	0.063	0.059	516	-	-					
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-					
Refrigerator Exchange	3	3		3	3		1,841	0.2	0.2	1,548	-	-	614	0.063	0.059	516	-	-					
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						38,122						1,315										
Misc Ins,Attic Access/Vent	18						3,215						179										
Duct Sealing	0						0						0										
Duct Insulation	0						0						0										
Damming Material	0						0						0										
Htg. Sys. Tune & Clean	4						500						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	22						4,970						226										
Water Heater Ventilation	17						2,881						169										
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						257						64										
Health/Safety Other	0						0						0										
Consumables	0						0						0										
General Repairs	26						6,622						255										
Meter Refrig (no action)	11						0						0										
Meter Freezer (no action)	1						0						0										
Support	27						19,676						729										
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										
Unspecified/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 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$102,580

Utility Administration Expenditures: -

Total Labor and Material Expenditures: \$102,580

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									
	Total	Electric	Gas	Cooling	Heating	Summer kW		Electricity		Annual kWh	Pk-Day therms	Gas Annual therms	Spending on Materials & Labor (\$)	Electricity		Annual kWh	Pk-Day therms	Gas Annual therms				
								Winter kWh	Summer kWh					Summer kWh	Winter kWh							
Total Efficiency Measures	20	20	13	20	20		82,089	2.9	4.6	14,272	27	2,389	4,104	0.147	0.230	714	2.05	184				
Total Shell & Htg. Sys. Repl	19	19	13	17	19		70,158	2.5	3,019	3.9	5,792	8,811	26	2,305	3,693	0.147	178	0.207	305	464	2.02	177
Total Shell Measures	19	19	13	17	19		35,733	2.5	3,019	3.9	5,710	8,728	13	1,159	1,881	0.147	178	0.204	301	459	1.01	89
Wall Insul.	2	2	2	2	0		6,595	0.3	326	0.0	0	326	2	198	3,298	0.135	163	0.000	0	163	1.13	99
Open Blown Ceiling Insul.	14	14	10	14	4		13,267	1.6	1,934	1.9	2,835	4,769	4	365	948	0.115	138	0.481	709	341	0.41	36
Cavity Fill Insul.	2	1	2	1	0		1,715	0.1	95	0.0	0	95	2	173	858	0.079	95	0.000	0	95	0.98	86
Sloped Attic Insul.	5	4	3	4	2		2,555	0.2	283	0.3	458	741	2	142	511	0.059	71	0.155	229	185	0.54	47
Kneewall Insul.	0	0	0	0	0		0	0.0	0	0.0	0	0	0	0	0	-	-	-	-	-	-	-
Infil. Reduction	16	16	12	16	4		5,577	0.2	203	0.2	276	479	3	229	349	0.011	13	0.047	69	30	0.22	19
Found./Crawl. Insul.	5	4	3	3	2		4,726	0.1	177	0.8	1,169	1,346	0	31	945	0.049	59	0.396	584	336	0.12	10
Bandjoist Insul.	7	2	5	-	2		1,013	0.0	0	0.0	36	36	0	24	145	0.000	0	0.012	18	18	0.05	5
Furnace Blower Fan ¹	14	14	13	-	14		0	0.0	0	0.6	936	936	(0)	(3)	0	0.000	0	0.045	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	11	2	9	-	2		34,425	0.0	0	0.1	82	82	13	1,147	3,130	0.000	0	0.028	41	41	1.45	127
Condensing Htg Sys Repl	9	0	9	-	-		27,425	0.0	0	0.0	0	0	13	1,147	3,047	-	-	-	-	-	1.45	127
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	58	58	0	0	3,500	0.000	0	0.039	58	58	-	-
Heat Pump Repl	1	1	0	-	1		3,500	0.0	0	0.0	25	25	0	0	3,500	0.000	0	0.017	25	25	-	-
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				Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms				
Water Heating	15	7	8	36	21	15	9,579	0.0	0.0	1,519	0.4	84	639	0.000	0.004	217	0.049	10				
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	6	5	11	6	5	104	0.0	0.0	259	0.0	15	9	0.000	0.000	43	0.01	3				
LF Showerhead	7	4	3	7	4	3	42	0.0	0.0	706	0.1	22	6	0.000	0.004	177	0.02	7				
Faucet Aerator	6	4	2	12	9	3	33	0.0	0.0	298	0.0	4	6	0.000	0.002	75	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.	7	2	5	6	2	4	9,400	0.0	0.0	256	0.3	43	1,343	0.000	0.003	128	0.05	9				
Lighting	12	12		92	92		242	0.3	0.5	2,511	-	-	20	0.022	0.041	209	-	-				
Refrigerator/Freezer³	2	2		3	3		2,110	0.2	0.2	1,430	-	-	1,055	0.088	0.082	715	-	-				
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-				
Refrigerator Exchange	1	1		1	1		810	0.1	0.1	516	-	-	810	0.063	0.059	516	-	-				
Freezer Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-				
Freezer Exchange	2	2		2	2		1,300	0.1	0.1	914	-	-	650	0.056	0.053	457	-	-				
Total Non-Efficiency Measures	20						20,490						1,025									
Misc Ins. Attic Access/Vent	5						1,550						310									
Duct Sealing	1						350						350									
Duct Insulation	1						53						53									
Damming Material	0						0						0									
Htg. Sys. Tune & Clean	9						1,340						149									
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						90						90									
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	9						2,250						250									
Water Heater Ventilation	5						925						185									
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						385						77									
Health/Safety Other	0						0						0									
Consumables	0						0						0									
General Repairs	14						3,725						266									
Meter Refrig (no action)	18						0						0									
Meter Freezer (no action)	8						0						0									
Support	19						9,822						517									
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									
Unspecified/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 2018**

Total Reported Labor, Materials and Utility Admin Expenditures: \$433,743

Utility Administration Expenditures: -

Total Labor and Material Expenditures: \$433,743

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									
	Total	Electric	Gas	Cooling	Heating		Electricity			Gas		Spending on Materials & Labor (\$)	Electricity			Gas					
							Summer kW	Winter kWh	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kWh	Annual kWh	Pk-Day therms	Annual therms				
Total Efficiency Measures	63	55	53	55	55	350,132	19.0	9.1	46,140	166	14,213	5,558	0.345	0.166	839	3.13	268				
Total Shell & Htg. Sys. Repl	63	55	53	55	55	300,618	17.2	20,712	6.2	8,769	29,481	163	13,764	4,772	0.312	377	0.113	159	536	3.08	260
Total Shell Measures	63	55	53	55	55	203,453	17.2	20,712	6.1	8,627	29,339	107	9,015	3,229	0.312	377	0.111	157	533	2.02	170
Wall Insul.	44	42	36	42	1	51,898	7.7	9,294	0.4	528	9,822	40	3,401	1,179	0.183	221	0.374	528	234	1.12	94
Open Blown Ceiling Insul.	50	45	41	45	1	58,511	5.2	6,261	0.6	778	7,038	30	2,556	1,170	0.115	139	0.551	778	156	0.74	62
Cavity Fill Insul.	29	26	24	26	0	27,671	1.6	1,914	0.0	0	1,914	13	1,083	954	0.061	74	0.000	0	74	0.54	45
Sloped Attic Insul.	25	21	21	21	1	14,328	1.0	1,258	1.0	1,459	2,717	9	740	573	0.050	60	1.034	1,459	129	0.42	35
Kneewall Insul.	18	17	15	17	1	4,579	0.3	373	0.1	113	486	2	185	254	0.018	22	0.080	113	29	0.15	12
Infil. Reduction	62	54	51	54	1	28,492	0.7	851	0.1	145	996	8	711	460	0.013	16	0.103	145	18	0.17	14
Found./Crawl. Insul.	31	8	31	8	0	16,319	0.6	763	0.0	0	763	4	330	526	0.079	95	0.000	0	95	0.13	11
Bandjoist Insul.	9	0	9	-	0	1,656	0.0	0	0.0	0	0	0	30	184	-	-	-	-	-	0.04	3
Furnace Blower Fan ¹	62	54	53	-	54	0	0.0	0	4.0	5,604	5,604	(0)	(21)	0	0.000	0	0.074	104	104	(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	39	1	38	-	1	97,165	0.0	0	0.1	142	142	56	4,750	2,491	0.000	0	0.101	142	142	1.48	125
Condensing Htg Sys Repl	38	0	38	-	-	95,227	0.0	0	0.0	0	0	56	4,750	2,506	-	-	-	-	-	1.48	125
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	1,938	0.0	0	0.1	142	142	0	0	1,938	0.000	0	0.101	142	142	-	-
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			Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms				
Water Heating	54	3	51	85	4	81	43,642	0.0	0.0	259	2.3	449	808	0.000	0.001	86	0.044	9			
Temp. Reduct.	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	-	-	-	-	-			
Pipe Insul.	53	3	50	53	3	50	940	0.0	0.0	130	0.4	150	18	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	-	-	-	-	-			
Faucet Aerator	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	-	-	-	-	-			
Hi-Eff or Electric Wtr Htr Repl.	32	1	31	32	1	31	42,702	0.0	0.0	130	1.8	298	1,334	0.000	0.003	130	0.06	10			
Lighting	34	34	34	348	348	348	1,360	1.3	2.5	12,721	-	-	40	0.039	0.073	374	-	-			
Refrigerator/Freezer³	6	6	6	7	7	7	4,511	0.5	0.4	3,680	-	-	752	0.075	0.071	613	-	-			
Refrigerator Removal	0	0	0	0	0	0	0.0	0.0	0.0	0	-	-	0	-	-	-	-	-			
Refrigerator Exchange	5	5	5	5	5	5	3,305	0.3	0.3	2,581	-	-	661	0.063	0.059	516	-	-			
Freezer Removal	0	0	0	0	0	0	0.0	0.0	0.0	0	-	-	0	-	-	-	-	-			
Freezer Exchange	2	2	2	2	2	2	1,206	0.1	0.1	1,099	-	-	603	0.068	0.063	550	-	-			
Total Non-Efficiency Measures	63	63	63	63	63	63	83,612	-	-	-	-	-	1,327	-	-	-	-	-			
Misc Ins. Attic Access/Vent	25	25	25	25	25	25	2,998	-	-	-	-	-	120	-	-	-	-	-			
Duct Sealing	11	11	11	11	11	11	2,672	-	-	-	-	-	243	-	-	-	-	-			
Duct Insulation	10	10	10	10	10	10	4,869	-	-	-	-	-	487	-	-	-	-	-			
Damming Material	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Htg. Sys. Tune & Clean	14	14	14	14	14	14	1,734	-	-	-	-	-	124	-	-	-	-	-			
Htg. Sys./WH Other	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Air Conditioning Work	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Water Heater Repair	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Refrigerator Coil Clean	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Waterbed Mattress Pad	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Programmable Tstat	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Unspecified Utility Meas.	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
CO Detector	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Smoke Detector	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Fuses	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Htg Sys Safety Check	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Htg Sys Ventilation	41	41	41	41	41	41	7,732	-	-	-	-	-	189	-	-	-	-	-			
Water Heater Ventilation	33	33	33	33	33	33	4,190	-	-	-	-	-	127	-	-	-	-	-			
Bathroom Ventilation	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Dryer Ventilation	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Kitchen Ventilation	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Other Exhaust Ventilation	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Asbestos Removal (Minor)	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Health/Safety Repairs	30	30	30	30	30	30	2,340	-	-	-	-	-	78	-	-	-	-	-			
Health/Safety Other	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Consumables	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
General Repairs	62	62	62	62	62	62	17,626	-	-	-	-	-	284	-	-	-	-	-			
Meter Refrig (no action)	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Meter Freezer (no action)	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Support	63	63	63	63	63	63	39,451	-	-	-	-	-	626	-	-	-	-	-			
Transportation Allowance	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Landlord Contr Misc	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Landlord Contr Furnace	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Landlord Contr DHW	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Client Contr (Any)	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			
Lead Safe Work	0	0	0	0	0	0	0	-	-	-	-	-	0	-	-	-	-	-			

Southern Iowa Economic Development Authority
Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$294,718

Utility Administration Expenditures: -

Total Labor and Material Expenditures: \$294,718

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									
	Total	Electric	Gas	Cooling	Heating		Electricity		Annual kWh	Gas		Spending on Materials & Labor (\$)	Electricity		Gas						
							Summer kWh	Winter kWh		Pk-Day therms	Annual therms		Summer kWh	Winter kWh	Annual kWh	Pk-Day therms	Annual therms				
Total Efficiency Measures	66	65	45	59	65	228,663	12.9	12.0	48,301	83	7,460	3,465	0.219	0.185	743	1.85	166				
Total Shell & Htg. Sys. Repl	61	60	45	54	60	190,052	10.8	13,024	8.3	12,280	25,304	83	7,263	3,116	0.200	241	0.139	205	422	1.83	161
Total Shell Measures	61	60	45	54	60	99,464	10.8	13,024	8.3	12,214	25,238	45	3,946	1,631	0.200	241	0.138	204	421	1.00	88
Wall Insul.	22	21	17	21	1	31,253	3.2	3,804	0.2	227	4,031	14	1,270	1,421	0.150	181	0.154	227	192	0.85	75
Open Blown Ceiling Insul.	43	42	30	42	6	36,913	5.2	6,330	3.8	5,615	11,945	16	1,377	858	0.125	151	0.635	936	284	0.52	46
Cavity Fill Insul.	4	4	4	4	0	1,111	0.2	256	0.0	0	256	2	188	278	0.053	64	0.000	0	64	0.53	47
Sloped Attic Insul.	8	8	7	8	1	4,670	0.5	656	0.3	383	1,040	4	339	584	0.068	82	0.260	383	130	0.55	48
Kneewall Insul.	5	4	5	4	0	3,332	0.2	225	0.0	0	225	2	188	666	0.047	56	0.000	0	56	0.43	38
Infil. Reduction	51	45	35	45	9	8,334	0.3	386	0.2	284	670	2	188	163	0.007	9	0.021	32	15	0.06	5
Found./Crawl. Insul.	35	18	27	17	6	8,424	1.1	1,367	1.0	1,542	2,909	2	210	241	0.067	80	0.174	257	162	0.09	8
Bandjoist Insul.	33	4	29	-	4	5,427	0.0	0	0.3	445	445	2	199	164	0.000	0	0.075	111	111	0.08	7
Furnace Blower Fan ¹	52	51	45	-	51	0	0.0	0	2.5	3,718	3,718	(0)	(13)	0	0.000	0	0.049	73	73	(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	90,588	0.0	0	0.0	66	66	38	3,316	2,831	0.000	0	0.045	66	66	1.22	107
Condensing Htg Sys Repl	31	0	31	-	-	87,088	0.0	0	0.0	0	0	38	3,316	2,809	-	-	-	-	-	1.22	107
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	66	66	0	0	3,500	0.000	0	0.045	66	66	-	-
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			Summer kWh	Winter kWh	Annual kWh	Pk-Day therms	Annual therms		Summer kWh	Winter kWh	Annual kWh	Pk-Day therms	Annual therms				
Water Heating	57	29	28	97	49	47	34,016	0.0	0.1	3,328	0.9	198	597	0.000	0.002	115	0.031	7			
Temp. Reduct.	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	-	-	-	-	-			
Pipe Insul.	51	26	25	51	26	25	378	0.0	0.0	1,123	0.2	75	7	0.000	0.000	43	0.01	3			
LF Showerhead	8	5	3	8	5	3	82	0.0	0.0	883	0.1	22	10	0.000	0.004	177	0.02	7			
Faucet Aerator	12	7	5	19	11	8	87	0.0	0.0	365	0.0	11	7	0.000	0.001	52	0.01	2			
Std-Eff Wtr Htr Repl.	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	-	-	-	-	-			
Hi-Eff or Electric Wtr Htr Repl.	26	10	16	19	7	11	33,470	0.0	0.0	958	0.5	89	1,287	0.000	0.002	96	0.03	6			
Lighting	39	39		403	403		2,503	1.9	3.4	17,714	-	-	64	0.048	0.088	454	-	-			
Refrigerator/Freezer³	4	4		4	4		2,092	0.2	0.2	1,956	-	-	523	0.060	0.056	489	-	-			
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-			
Refrigerator Exchange	1	1		1	1		850	0.0	0.0	307	-	-	850	0.038	0.035	307	-	-			
Freezer Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-			
Freezer Exchange	3	3		3	3		1,242	0.2	0.2	1,649	-	-	414	0.068	0.063	550	-	-			
Total Non-Efficiency Measures	67						66,056						986								
Misc Ins,Attic Access/Vent	18						2,106											117			
Duct Sealing	0						0											0			
Duct Insulation	0						0											0			
Damming Material	0						0											0			
Htg. Sys. Tune & Clean	8						1,050											131			
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	33						5,670											172			
Water Heater Ventilation	17						2,825											166			
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						534											107			
Health/Safety Other	0						0											0			
Consumables	0						0											0			
General Repairs	52						15,521											298			
Meter Refrig (no action)	0						0											0			
Meter Freezer (no action)	0						0											0			
Support	66						38,349											581			
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			
Unspecified/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 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$310,478

Utility Administration Expenditures: -

Total Labor and Material Expenditures: \$310,478

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										
	Total	Electric	Gas	Cooling	Heating	Summer kW		Electricity		Annual kWh	Pk-Day therms	Gas Annual therms	Spending on Materials & Labor (\$)	Electricity		Annual kWh	Pk-Day therms	Gas Annual therms					
								Winter kWh	kWh					kW	kWh								
Total Efficiency Measures	51	37	41	37	37		257,502	8.9	7.9	37,730	89	8,868	5,049	0.240	0.213	1,020	2.18	216					
Total Shell & Htg. Sys. Repl	51	37	41	35	37		204,291	6.5	7,892	3.8	6,267	14,159	88	8,525	4,006	0.187	225	0.104	169	383	2.14	208	
Total Shell Measures	51	37	41	35	37		129,672	6.5	7,892	3.8	6,267	14,159	48	4,702	2,543	0.187	225	0.104	169	383	1.18	115	
Wall Insul.	33	22	28	22	1		62,183	2.5	3,043	1.3	2,196	5,239	24	2,363	1,884	0.115	138	1,346	2,196	238	0.87	84	
Open Blown Ceiling Insul.	41	31	34	31	1		23,023	1.9	2,336	0.2	324	2,661	6	629	562	0.062	75	0.199	324	86	0.19	18	
Cavity Fill Insul.	13	8	11	8	0		5,615	0.4	447	0.0	0	447	4	359	432	0.046	56	0.000	0	56	0.33	33	
Sloped Attic Insul.	21	15	17	15	1		7,865	1.1	1,365	0.7	1,105	2,469	7	693	375	0.075	91	0.677	1,105	165	0.42	41	
Kneewall Insul.	4	2	4	2	0		501	0.0	24	0.0	0	24	0	40	125	0.010	12	0.000	0	12	0.10	10	
Infil. Reduction	48	30	39	30	1		16,130	0.4	430	0.1	129	560	5	445	336	0.012	14	0.079	129	19	0.12	11	
Found./Crawl. Insul.	13	4	13	4	0		7,876	0.2	247	0.0	0	247	1	87	606	0.051	62	0.000	0	62	0.07	7	
Bandjoist Insul.	22	1	21	-	1		6,479	0.0	0	0.0	50	50	1	100	295	0.000	0	0.031	50	50	0.05	5	
Furnace Blower Fan ¹	50	36	41	-	36		0	0.0	0	1.5	2,463	2,463	(0)	(14)	0	0.000	0	0.042	68	68	(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		74,620	0.0	0	0.0	0	0	39	3,823	2,261	-	-	-	-	-	-	1.19	116
Condensing Htg Sys Repl	33	0	33	-	-		74,620	0.0	0	0.0	0	0	39	3,823	2,261	-	-	-	-	-	-	1.19	116
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				Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms					
Water Heating	40	13	27	82	22	60	44,699	0.0	0.0	1,764	1.7	343	1,117	0.000	0.002	136	0.062	13					
Temp. Reduct.	9	2	7	9	2	7	0	0.0	0.0	0	0.2	53	0	0.000	0.000	116	0.02	8					
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0	0	-	-	-	-	-					
Pipe Insul.	39	13	26	39	13	26	770	0.0	0.0	562	0.2	78	20	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.	35	8	27	34	7	27	43,929	0.0	0.0	970	1.3	213	1,255	0.000	0.003	121	0.05	8					
Lighting	36	36		429	429		2,989	2.0	3.7	18,857	-	-	83	0.055	0.102	524	-	-					
Refrigerator/Freezer³	7	7		6	6		5,523	0.4	0.3	2,950	-	-	789	0.052	0.048	421	-	-					
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-					
Refrigerator Exchange	7	7		6	6		5,523	0.4	0.3	2,950	-	-	789	0.052	0.048	421	-	-					
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	51						52,976						1,039										
Misc Ins. Attic Access/Vent	25						2,735						109										
Duct Sealing	0						0						0										
Duct Insulation	1						308						308										
Damming Material	0						0						0										
Htg. Sys. Tune & Clean	4						405						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	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	31						4,540						146										
Water Heater Ventilation	27						3,147						117										
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	13						1,078						83										
Health/Safety Other	0						0						0										
Consumables	0						0						0										
General Repairs	47						10,022						213										
Meter Refrig (no action)	1						0						0										
Meter Freezer (no action)	0						0						0										
Support	51						30,742						603										
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										
Unspecified/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 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$307,788

Utility Administration Expenditures: -

Total Labor and Material Expenditures: \$307,788

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									
	Total	Electric	Gas	Cooling	Heating	Summer kW		Electricity		Annual kWh	Pk-Day therms	Gas Annual therms	Spending on Materials & Labor (\$)	Electricity		Annual kWh	Pk-Day therms	Gas Annual therms				
								Winter kWh	Summer kWh					Summer kWh	Winter kWh							
Total Efficiency Measures	38	33	30	33	33		250,784	10.0		7.8		32,530	66	5,917	6,600	0.303	0.236	986	2.20	197		
Total Shell & Htg. Sys. Repl	38	33	30	32	33		205,629	8.7	10,437	5.3	7,683	18,120	64	5,541	5,411	0.270	0.161	233	549	2.14	185	
Total Shell Measures	38	33	30	32	33		119,296	8.7	10,437	5.1	7,320	17,757	26	2,276	3,139	0.270	0.154	222	538	0.88	76	
Wall Insul.	24	20	19	20	1		45,595	3.6	4,363	1.0	1,424	5,787	14	1,179	1,900	0.181	0.128	1,424	289	0.72	62	
Open Blown Ceiling Insul.	30	25	23	25	3		33,280	3.0	3,584	1.4	1,961	5,546	3	273	1,109	0.119	0.086	654	222	0.14	12	
Cavity Fill Insul.	4	4	2	4	2		5,334	0.3	402	1.1	1,641	2,043	1	116	1,334	0.083	0.058	821	511	0.67	58	
Sloped Attic Insul.	17	12	12	12	1		7,483	1.2	1,425	0.1	128	1,554	4	322	440	0.098	0.089	128	129	0.31	27	
Kneewall Insul.	4	2	3	2	1		1,552	0.0	30	0.0	14	44	0	4	388	0.012	0.010	14	22	0.01	1	
Infil. Reduction	38	18	30	18	4		12,686	0.2	293	0.1	198	491	3	258	334	0.014	0.034	50	27	0.10	9	
Found./Crawl. Insul.	16	4	12	4	3		11,935	0.3	340	0.5	712	1,051	1	108	746	0.070	0.164	237	263	0.10	9	
Bandjoist Insul.	10	3	7	-	3		1,431	0.0	0	0.3	385	385	0	22	143	0.000	0.089	128	128	0.04	3	
Furnace Blower Fan ¹	34	29	30	-	29		0	0.0	0	0.6	856	856	(0)	(6)	0	0.000	0	0.020	30	30	(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	4	25	-	4		86,333	0.0	0	0.3	363	363	38	3,265	2,977	0.000	0	0.063	91	91	1.52	131
Condensing Htg Sys Repl	25	0	25	-	-		72,333	0.0	0	0.0	0	0	38	3,265	2,893	-	-	-	-	-	1.52	131
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	66	66	0	0	3,500	0.000	0	0.046	66	66	-	-
Heat Pump Repl	3	3	0	-	3		10,500	0.0	0	0.2	297	297	0	0	3,500	0.000	0	0.068	99	99	-	-
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				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	7	28	100	22	78	42,359	0.0	0.0		1,703	1.7	376	1,210	0.000	0.005		243	0.062	13		
Temp. Reduct.	4	0	4	4	0	4	0	0.0	0.0	0.0	0	0.1	30	0	-	-	-	-	-	0.02	8	
WH Wrap	0	0	0	0	0	0	0	0.0	0.0	0.0	0	0.0	0	0	-	-	-	-	-	-	-	
Pipe Insul.	33	7	26	33	7	26	630	0.0	0.0	0.0	302	0.2	78	19	0.000	0.000	0.000	43	0.01	3		
LF Showerhead	11	4	7	12	4	8	120	0.0	0.0	0.0	706	0.2	51	11	0.000	0.004	0.000	177	0.02	7		
Faucet Aerator	17	5	12	25	7	18	125	0.0	0.0	0.0	232	0.1	26	7	0.000	0.001	0.000	46	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	-	-	-	-	-	-	-	
Hi-Eff or Electric Wtr Htr Repl.	29	4	25	26	4	22	41,484	0.0	0.0	0.0	463	1.2	191	1,430	0.000	0.003	0.000	116	0.05	8		
Lighting	28	28		300	300		2,116	1.3	2.4		12,190	-	-	76	0.046	0.084		435	-	-		
Refrigerator/Freezer³	1	1		1	1		680	0.1	0.1		516	-	-	680	0.063	0.059		516	-	-		
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0.0	0	-	-	0	-	-	-	-	-	-	-	
Refrigerator Exchange	1	1		1	1		680	0.1	0.1	0.1	516	-	-	680	0.063	0.059	0.000	516	-	-		
Freezer Removal	0	0		0	0		0	0.0	0.0	0.0	0	-	-	0	-	-	-	-	-	-	-	
Freezer Exchange	0	0		0	0		0	0.0	0.0	0.0	0	-	-	0	-	-	-	-	-	-	-	
Total Non-Efficiency Measures	38						57,004							1,500								
Misc Ins. Attic Access/Vent	25						2,777														111	
Duct Sealing	0						0														0	
Duct Insulation	3						156														52	
Damming Material	0						0														0	
Htg. Sys. Tune & Clean	3						365														122	
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	24						5,565														232	
Water Heater Ventilation	20						3,315														166	
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	7						632														90	
Health/Safety Other	0						0														0	
Consumables	0						0														0	
General Repairs	38						14,124														372	
Meter Refrig (no action)	1						0														0	
Meter Freezer (no action)	0						0														0	
Support	35						30,069														859	
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	
Unspecified/Other	0																					

Community Action Agency of Siouxland
Billing Adjusted Costs and Impacts for Utility-Funded Measures Installed During Calendar Year 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$155,141

Utility Administration Expenditures: -

Total Labor and Material Expenditures: \$155,141

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										
	Total	Electric	Gas	Cooling	Heating	Summer kW		Electricity		Annual kWh	Gas		Spending on Materials & Labor (\$)	Electricity		Gas							
								Summer kWh	Winter kWh		Pk-Day therms	Annual therms		Summer kW	Winter kWh	Annual kWh	Pk-Day therms	Annual therms					
Total Efficiency Measures	28	27	25	27	27		138,080	6.5	7.1	31,482	42	3,990	4,931	0.241	0.265	1,166	1.69	160					
Total Shell & Htg. Sys. Repl	27	27	24	22	27		112,209	4.3	5.175	3.6	5,470	10,646	41	3,775	4,156	0.195	0.235	0.133	203	394	1.72	157	
Total Shell Measures	27	27	24	22	27		58,929	4.3	5.175	3.6	5,470	10,646	22	2,025	2,183	0.195	0.235	0.133	203	394	0.92	84	
Wall Insul.	13	12	12	12	1		18,774	1.6	1,913	0.5	758	2,672	10	948	1,444	0.132	159	0.496	758	223	0.87	79	
Open Blown Ceiling Insul.	22	19	19	19	2		19,351	1.8	2,155	1.6	2,407	4,562	5	467	880	0.094	113	0.787	1,204	240	0.27	25	
Cavity Fill Insul.	6	5	5	5	0		6,990	0.4	482	0.0	0	482	2	185	1,165	0.080	96	0.000	0	96	0.41	37	
Sloped Attic Insul.	3	3	3	3	0		2,497	0.2	279	0.0	0	279	1	130	832	0.077	93	0.000	0	93	0.47	43	
Kneewall Insul.	3	3	3	3	0		1,827	0.1	177	0.0	0	177	1	92	609	0.049	59	0.000	0	59	0.34	31	
Infil. Reduction	1	1	0	1	1		124	0.0	16	0.1	136	152	0	0	124	0.013	16	0.089	136	152	-	-	
Found./Crawl. Insul.	4	2	4	2	0		3,916	0.1	153	0.0	0	153	1	56	979	0.064	77	0.000	0	77	0.15	14	
Bandjoist Insul.	14	1	13	-	1		5,450	0.0	0	0.1	121	121	2	154	389	0.000	0	0.079	121	121	0.13	12	
Furnace Blower Fan ¹	25	25	24	-	25		0	0.0	0	1.3	2,047	2,047	(0)	(7)	0	0.000	0	0.054	82	82	(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	17	0	17	-	0		53,280	0.0	0.0	0.0	0	0	19	1,751	3,134	-	-	-	-	-	-	1.13	103
Condensing Htg Sys Repl	17	0	17	-	-		53,280	0.0	0.0	0.0	0	0	19	1,751	3,134	-	-	-	-	-	-	1.13	103
Non-Cond Htg Sys Repl	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	-	-	-	-	-	-	-	-
Heat Pump Repl	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	-	-	-	-	-	-	-	-
	Total	Electric	Gas	Number of Measures by Fuel Type				Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms					
Water Heating	28	5	23	50	8	43	18,415	0.0	0.0	565	0.9	215	658	0.000	0.002	113	0.040	9					
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.	28	5	23	28	5	23	560	0.0	0.0	216	0.2	69	20	0.000	0.000	-	43	0.01	3				
LF Showerhead	9	0	9	10	0	10	100	0.0	0.0	0	0.2	62	11	-	-	-	-	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.	13	3	10	11	3	9	17,750	0.0	0.0	349	0.5	83	1,365	0.000	0.003	-	116	0.05	8				
Lighting	25	25		354	354		2,478	1.6	3.0	15,560	-	-	99	0.065	0.121	622	-	-					
Refrigerator/Freezer³	9	9		9	9		4,978	0.6	0.5	4,712	-	-	553	0.064	0.060	524	-	-					
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-					
Refrigerator Exchange	7	7		7	7		4,068	0.4	0.4	3,613	-	-	581	0.063	0.059	516	-	-					
Freezer Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-					
Freezer Exchange	2	2		2	2		910	0.1	0.1	1,099	-	-	455	0.068	0.063	550	-	-					
Total Non-Efficiency Measures	28						17,061						609										
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	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	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	10						1,685						169										
Water Heater Ventilation	6						1,000						167										
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	13						17,750						1,365										
Health/Safety Other	0						0						0										
Consumables	0						0						0										
General Repairs	0						0						0										
Meter Refrig (no action)	17						0						0										
Meter Freezer (no action)	11						0						0										
Support	28						14,151						505										
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										
Unspecified/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 2018

Total Reported Labor, Materials and Utility Admin Expenditures: \$595,619

Utility Administration Expenditures: -

Total Labor and Material Expenditures: \$595,619

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										
	Total	Electric	Gas	Cooling	Heating	Summer kW		Electricity		Annual kWh	Gas		Spending on Materials & Labor (\$)	Electricity		Gas							
								kWh	kWh		Pk-Day therms	Annual therms		Summer kWh	Winter kWh	Annual kWh	Pk-Day therms	Annual therms					
Total Efficiency Measures	96	96	90	91	96		495,429	19.9	13.6	54,387	232	21,315	5,161	0.218	0.142	567	2.58	237					
Total Shell & Htg. Sys. Repl	92	92	90	70	92		394,638	18.2	21,905	11.1	16,503	38,407	227	20,227	4,290	0.259	313	0.121	179	417	2.52	225	
Total Shell Measures	92	92	90	70	92		295,607	18.2	21,905	11.1	16,503	38,407	172	15,262	3,213	0.259	313	0.121	179	417	1.91	170	
Wall Insul.	61	50	59	50	2		108,741	7.7	9,335	1.1	1,634	10,970	42	3,737	1,783	0.155	187	0.557	817	219	0.72	63	
Open Blown Ceiling Insul.	76	66	74	66	2		76,944	6.3	7,553	0.1	88	7,641	58	5,202	1,012	0.095	114	0.030	44	116	0.79	70	
Cavity Fill Insul.	55	46	53	46	2		43,303	2.4	2,880	1.5	2,224	5,104	48	4,272	787	0.052	63	0.758	1,112	111	0.91	81	
Sloped Attic Insul.	26	22	26	22	0		12,043	0.7	832	0.0	0	832	7	644	463	0.031	38	0.000	0	38	0.28	25	
Kneewall Insul.	31	24	31	24	0		12,296	0.5	607	0.0	0	607	6	530	397	0.021	25	0.000	0	25	0.19	17	
Infil. Reduction	1	1	1	1	0		29	0.0	1	0.0	0	1	0	1	29	0.001	1	0.000	0	1	0.01	1	
Found./Crawl. Insul.	44	9	44	9	0		40,512	0.6	695	0.0	0	695	10	873	921	0.064	77	0.000	0	77	0.22	20	
Bandjoist Insul.	8	0	8	-	0		1,739	0.0	0	0.0	0	0	1	50	217	-	-	-	-	-	0.07	6	
Furnace Blower Fan ¹	90	90	90	-	90		0	0.0	0	8.4	12,556	12,556	(1)	(47)	0	0.000	0	0.094	140	140	(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		99,031	0.0	0	0.0	0	0	55	4,965	1,904	-	-	-	-	-	-	1.07	95
Condensing Htg Sys Repl	52	0	52	-	-		99,031	0.0	0	0.0	0	0	55	4,965	1,904	-	-	-	-	-	-	1.07	95
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				Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms		Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms					
Water Heating	84	7	77	274	15	259	90,667	0.0	0.0	711	5.0	1,088	1,079	0.000	0.001	102	0.065	14					
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.	80	7	73	80	7	73	1,550	0.0	0.0	302	0.6	219	19	0.000	0.000	43	0.01	3					
LF Showerhead	26	1	25	32	1	31	320	0.0	0.0	177	0.6	182	12	0.000	0.004	177	0.02	7					
Faucet Aerator	61	4	57	108	7	101	527	0.0	0.0	232	0.5	144	9	0.000	0.001	58	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.	60	0	60	54	0	54	88,270	0.0	0.0	0	3.3	542	1,471	-	-	-	-	0.06	9				
Lighting	69	69		611	611		4,277	1.0	1.9	9,592	-	-	62	0.015	0.027	139	-	-					
Refrigerator/Freezer³	11	11		11	11		5,847	0.7	0.7	5,677	-	-	532	0.063	0.059	516	-	-					
Refrigerator Removal	0	0		0	0		0	0.0	0.0	0	-	-	0	-	-	-	-	-					
Refrigerator Exchange	11	11		11	11		5,847	0.7	0.7	5,677	-	-	532	0.063	0.059	516	-	-					
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	95						100,190						1,055										
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	20						2,500						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	2						200						100										
Smoke Detector	0						0						0										
Fuses	0						0						0										
Htg Sys Safety Check	0						0						0										
Htg Sys Ventilation	51						9,435						185										
Water Heater Ventilation	57						10,428						183										
Bathroom Ventilation	0						0						0										
Dryer Ventilation	1						80						80										
Kitchen Ventilation	0						0						0										
Other Exhaust Ventilation	0						0						0										
Asbestos Removal (Minor)	0						0						0										
Health/Safety Repairs	60						88,270						1,471										
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	95						77,548						816										
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										
Unspecified/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

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Household characteristics										
Quarterly gross income	\$4,190	\$4,130	\$4,344	\$4,355	\$4,286	\$4,406	\$4,600	\$6,691	\$9,414	\$9,871
Average members	2.8	2.9	2.9	2.8	2.7	2.7	2.7	2.7	2.7	2.7
Percentage of households with:										
Elderly	34.2	24.0	29.1	29.4	30.8	28.9	31.3	34.4	35.5	38.2
Handicapped	35.7	25.4	32.9	30.1	32.6	31.3	30.6	34.1	33.4	35.1
Young children	21.5	18.6	25.2	21.9	20.1	22.4	19.4	17.4	20.7	17.6
Housing type (%)										
Single family home	87.9	82.6	89.6	87.3	84.8	87.4	88.4	88.1	89.1	87.9
Mobile home	9.9	7.6	10.0	10.2	11.9	10.6	8.6	7.9	7.2	7.5
Duplex	0.3	0.3	0.1	0.7	3.2	1.9	2.8	3.9	3.6	3.5
Three+ unit apartment	1.0	6.8	0.3	1.8	0.1	0.1	0.2	0.1	0.2	1.0
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	1.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Heating system type (%)										
Natural gas	85.6	82.7	81.0	80.8	80.3	84.2	86.7	85.4	84.1	86.9
Propane	9.3	11.9	12.9	13.3	12.3	9.2	8.1	8.6	8.3	6.3
Fuel oil	0.3	0.8	0.8	0.8	0.9	0.2	0.1	0.5	1.1	0.3
Electricity	4.7	4.5	5.4	5.1	6.4	6.4	5.2	5.5	6.4	6.6
Other	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.0
Air conditioning type (%)										
Central	55.3	54.1	58.7	57.3	60.2	63.6	62.0	62.6	64.9	67.9
Room	32.5	31.4	27.8	30.4	29.4	26.3	29.5	28.0	27.3	26.2
None or Missing Data	12.2	14.5	13.6	12.3	10.4	10.1	8.5	9.4	7.8	5.9
Blower door readings (average cfm50)										
Pre	3,374	3,281	3,294	3,454	3,281	3,437	3,429	3,420	3,447	3,601
Post	2,120	2,040	2,054	2,139	2,053	2,100	2,148	2,565	2,160	2,283

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APPENDIX B – FIGURE DATA

Figure 1.1 First Year Energy Savings (therms) – Program

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Heating System Work	173,277	286,866	286,414	192,441	102,711	116,295	113,515	107,412	89,404	84,822
Infiltration Reduction	37,383	54,194	59,030	35,991	24,403	24,864	22,482	20,948	16,743	16,078
Insulation	307,272	480,401	494,564	333,793	197,200	197,846	184,203	148,756	123,312	116,900
Light/Water Heat/Other Utilit	11,235	17,070	16,057	9,698	7,726	6,002	6,062	4,403	3,874	3,586
Water Heater Replacement	22,830	44,509	54,904	32,819	25,296	28,290	33,942	29,679	23,656	5,486
Whole House Ventilation							-2,392	-4,936	-4,269	-3,681

Figure 1.2 First Year Energy Savings (kWh) – Program

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Heating System Work	3,693	6,770	8,324	4,975	3,937	186,516	201,190	185,546	159,209	141,656
Infiltration Reduction	81,711	146,544	150,295	59,937	39,935	46,035	32,037	41,401	42,306	32,996
Insulation	1,101,156	1,779,971	1,811,722	759,702	466,832	466,307	358,537	446,239	470,351	393,957
Light/Water Heat/Other Utilit	1,799,651	2,589,000	2,734,566	947,748	596,538	567,195	572,018	371,009	369,048	372,411
Water Heater Replacement	9,359	15,535	19,171	7,824	12,343	14,023	15,089	17,269	15,857	12,699
Whole House Ventilation							-24,538	-59,517	-70,405	-55,641

Figure 1.3 Overall Program Expenditures

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Heating System Work	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	2,639,470
Infiltration Reduction	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	1,050,911
Insulation	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	3,296,812
Light/Water Heat/Other Utilit	838,645	1,198,884	1,233,806	720,138	424,488	356,538	327,532	328,738	241,252	181,688
Other	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	1,558,818
Repair	1,476,901	2,348,113	2,405,336	1,491,583	1,039,839	971,976	785,187	930,041	828,300	841,939
Support	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	4,333,342
Water Heater Replacement	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	1,216,971
Whole House Ventilation			687,151	648,556	367,224	488,871	368,924	1,018,951	898,996	802,972

Figure 1.4 Average Program Expenditures per Housing Unit

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Heating System Work	1,370	1,640	1,800	1,750	1,690	2,080	2,230	2,302	2,189	2,281
Infiltration Reduction	420	480	520	500	540	620	660	803	833	908
Insulation	2,320	2,420	2,780	2,550	2,330	2,710	2,830	2,843	2,742	2,849
Light/Water Heat/Other Ut	310	270	270	240	230	210	220	223	192	157
Other	520	600	690	670	950	1,020	1,420	1,346	1,242	1,347
Repair	550	520	530	500	560	580	520	631	660	728
Support	2,080	2,100	1,970	1,960	2,520	2,920	3,140	3,600	3,642	3,745
Water Heater Repl	290	370	540	510	560	790	1,030	1,072	1,027	1,052
Whole House Ventilation			150	220	200	290	240	692	716	694
	7,864	8,392	9,258	8,901	9,577	11,227	12,295	13,512	13,255	13,762

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

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Whole House Ventilation							-5,593	-12,094	-13,169	-10,721
Heating System Work	194,435	347,960	371,197	227,712	121,871	129,924	123,290	114,855	107,911	89,550
Infiltration Reduction	50,567	79,880	84,236	43,906	29,920	28,584	23,482	23,425	21,220	17,763
Insulation	438,803	731,293	759,964	424,194	256,624	234,798	199,673	183,128	174,531	149,405
Light/Water Heat/Other Ut	164,826	264,515	280,880	103,539	66,702	63,990	67,400	45,384	46,038	46,041
Water Heater Replacement	26,646	49,095	63,944	37,826	29,556	31,404	35,593	31,142	27,027	7,249

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

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Heating System Work	67,873	77,401	111,218	67,910	60,813	70,795	67,323	69,667	58,964	56,587
Infiltration Reduction	3,350	4,425	10,340	5,358	5,129	5,467	4,923	4,784	5,275	5,361
Insulation	147,574	123,140	207,156	131,917	131,486	132,525	119,370	102,315	93,879	82,856
Light/Water Heat/Other Utilit	5,107	4,134	6,809	4,029	4,604	3,911	3,852	2,809	2,838	2,480
Water Heater Replacement	7,808	10,499	25,346	13,943	15,335	15,826	18,230	17,885	16,361	3,501

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

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Heating System Work	832	536	3,286	417	224	64,339	66,083	71,506	66,476	56,869
Infiltration Reduction	7,456	11,035	18,659	7,535	6,267	9,268	8,069	8,430	12,372	9,802
Insulation	491,564	497,304	613,470	264,752	237,590	282,915	212,946	283,722	321,895	242,091
Light/Water Heat/Other Utilit	705,236	704,991	922,461	347,294	336,976	344,858	350,640	218,339	251,166	247,622
Water Heater Replacement	5,779	8,485	11,516	4,774	3,587	5,753	6,780	9,119	9,580	7,629

Figure 1.10 Utility Expenditures

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Heating System Work	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	1,344,597
Infiltration Reduction	72,138	142,164	288,225	173,869	172,746	198,737	204,838	212,265	273,962	271,847
Insulation	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	2,014,536
Light/Water Heat/Other Utilit	291,378	296,528	375,480	249,184	227,782	200,560	188,571	180,770	160,696	106,432
Other	51,664	60,862	128,109	72,842	62,892	107,646	124,082	147,766	176,289	182,118
Repair	163,350	104,189	157,260	96,832	104,157	129,832	121,538	123,880	168,145	177,192
Support	495,431	458,520	706,131	420,502	466,296	564,572	523,448	602,760	585,371	548,279
Water Heater Replacement	193,094	272,140	702,797	414,525	481,837	597,828	762,163	849,809	815,113	685,224

