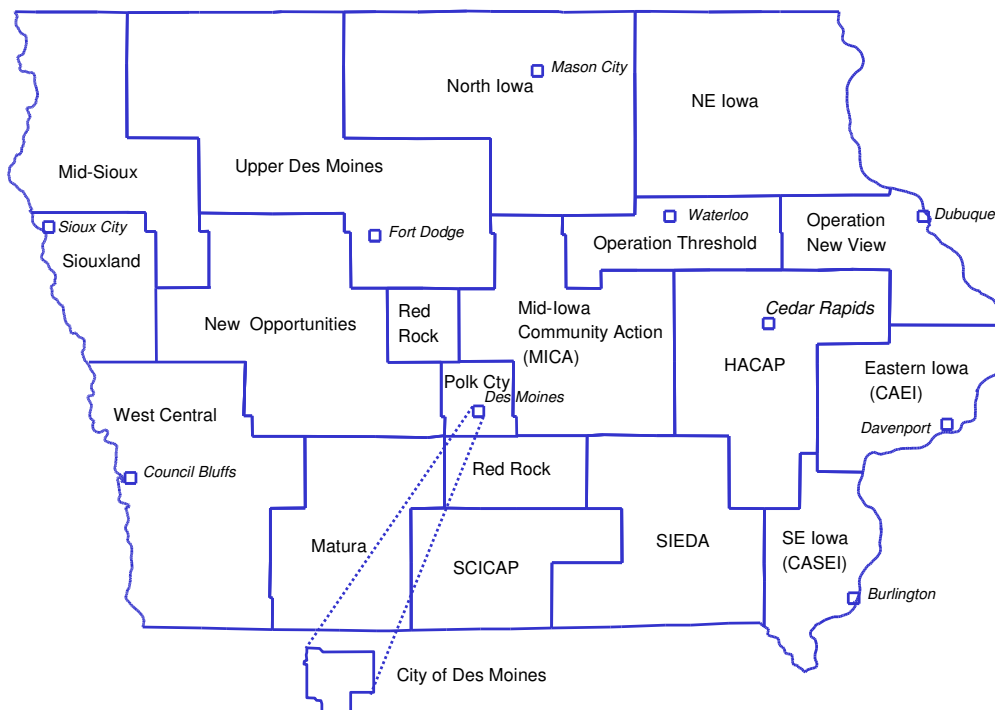


REPORT ON THE IMPACTS AND COSTS OF THE IOWA LOW-INCOME WEATHERIZATION PROGRAM -- Calendar Year 2011

**Final
May 6, 2013**

Iowa Local Weatherization Agencies



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Calendar Year 2011

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**Prepared for the
Iowa Statewide Low-Income Collaborative**

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1. 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 2011 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 natural gas impacts were adjusted using billing analysis of the program clients.

Added utility detail, lead safe work, utility charts

PROGRAM COSTS AND IMPACTS

The WAP program installed measures in 4,533 dwellings during calendar year (CY) 2011. Program spending totaled \$41,977,443 for materials, labor, and support in houses weatherized to completion during calendar year (CY) 2011, increasing by 10.9% from \$37,837,471 in 2010. Federal and state funding accounted for 80.5% of all funding – all but 2% of which were provided through American Recovery and Reinvestment Act (ARRA) funds.

The average household expenditures for all dwellings weatherized in 2011 increased by 10.3% to \$9,258 from \$8,392 in 2010. The major measures installed by the program in 2011 are essentially unchanged from the 2010 program.

First-year savings included 910,992 therms; 4,739,445 kWh electricity; 160,097 gallons of propane; and 7,193 gallons of fuel oil. First-year peak demand savings totaled 9,602 therms, 1,414 kW summer demand, and 842 kW winter demand.

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

On average, the program saved 1,064 kWh of electricity for 4,455 dwellings with electricity impacts. The program saved an average of 246 therms of natural gas for 3,700 dwellings with gas impacts. In addition, the program delivered first-year savings of 271 gallons of propane in 591 dwellings with propane impacts, and 212 gallons of fuel oil in 34 dwellings with fuel oil impacts.

First-year client energy cost savings totaled \$1,560,221, averaging \$344 for dwellings weatherized in the CY 2011 program.

UTILITY EXPENDITURES AND IMPACTS

Utility funding totaled \$8,193,607, and averaged \$3,778 for the 2,169 dwellings that received utility-funded measures. Funding increased by 69.7 % from \$4,828,289 in 2010.

Utility-funded measures accounted for 33.1% of all energy savings for electricity and 39.6% of gas savings. Utility-funded measures saved a total of 1,569,392 kWh, averaging of 874 kWh of electricity for the 1,795 dwellings with utility-funded electricity measures. These measures saved 212 therms of natural gas for the 1,701 dwellings with utility-funded natural gas measures. Utility-funded measures installed reduced peak electricity demand by 487 kW in the summer and 258 kW in the winter, and provided 3,807 peak-day therms of gas savings.

Utility-funded measures yielded first-year client bill savings of \$454,869, averaging \$211 per dwelling that received utility-funded measures. Savings averaged \$85 per household for utility-funded electricity measures, and \$178 for gas measures.

Summary of Program Impacts and Costs

Overall Program Impacts

	Electricity (kWh and kW)			Natural Gas (therms)			Propane (gals)	Fuel Oil (gals)
	Overall	DCAA/ARRA	Utility	Overall	DCAA/ARRA	Utility	DCAA/ARRA	DCAA/ARRA
Energy	4,739,445	3,170,053	1,569,392	910,992	550,123	360,869	160,097	7,193
Summer Demand	1,414	927.1	486.9	NA	NA	NA	NA	NA
Winter Demand	842	583.4	258.3	9,602	5,795	3,807	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/ARRA	Utility	Overall	DCAA/ARRA	Utility	DCAA/ARRA	DCAA/ARRA
Energy	1,064	775	874	246	153	212	271	212
Summer Demand	0.317	0.227	0.271	NA	NA	NA	NA	NA
Winter Demand	0.189	0.143	0.144	2.595214	1.6075	2.238	NA	NA

Expenditures and Client Fuel Bill Savings

Totals	Overall	DCAA/ARRA	Utility	Averages	Overall	DCAA/ARRA ²	Utility
Expenditures	\$41,978,443	\$33,784,835	\$8,193,607	Expenditures	\$9,259	\$7,453	\$3,778
Client Fuel Savings	\$1,560,221	\$1,105,351	\$454,869	Client Fuel Savings	\$344	\$244	\$210

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 DCAA funds measures that provide no fuel savings, including health & safety and repairs

FUEL CONSUMPTION ANALYSIS RESULTS

The natural gas savings reported herein 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 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. The fuel consumption analysis showed savings averaging 258 therms $\pm$ 9 at 90% confidence for single family detached framed dwellings. This represents a 25.6% savings $\pm$ 0.7% at 90% confidence for natural gas measures. Mobile home savings were 144 therms $\pm$ 23 at 90% confidence, equating to a 17.2% savings $\pm$ 2.2%.

CHANGES IN PROGRAM DELIVERY AND REPORTING

There were no significant changes in measures delivered for the CY 2011 program, as compared to the CY 2010 program.

Organization of the Report

Section 2, 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 3, 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.

Section 4, 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.

A separate table providing a break out the impacts and expenditures for ARRA-funded measures was added to this report.

Section 5, Detailed Spending and Impact Profiles by Agency provides tables similar to those in Section 4 for each weatherization agency, for all measures installed.

Section 6, 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 2011.

2. SUMMARY OF PROGRAM IMPACTS AND EXPENDITURES

AGGREGATE PROGRAM EXPENDITURES AND IMPACTS

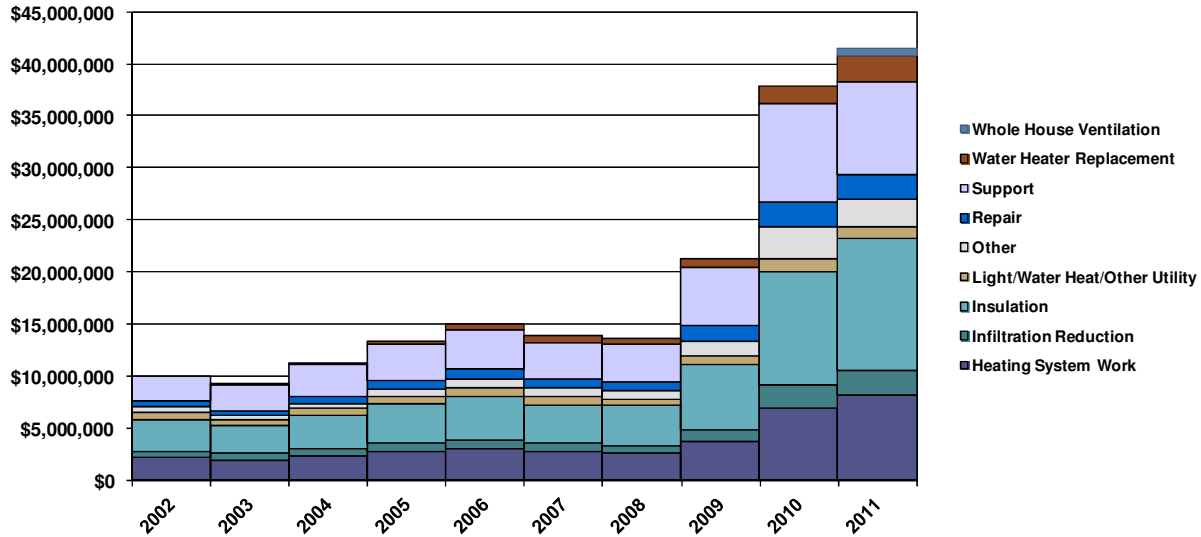


Figure 2.1a Overall Program Expenditures

Program spending totaled \$41,977,625 for materials, labor, and support in houses weatherized to completion during calendar year (CY) 2011, increasing by 10.9% from \$37,837,471 in 2010. (see Figure 2.1a, totals exclude administration expenditures). Federal and state funding accounted for 80.5% of all funding – all but 2% of which were provided through American Recovery and Reinvestment Act (ARRA) funds. A total of 4,533 dwellings were weatherized in 2011 compared with 4,509 in 2010.

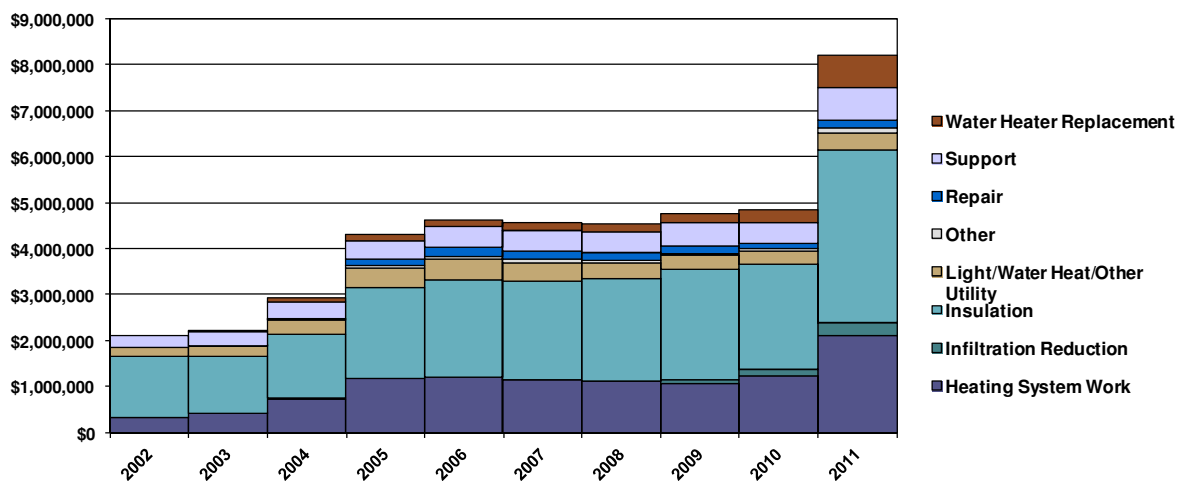


Figure 2.1b Utility Expenditures

Utility funding totaled increased by 69.7% in 2011 to \$8,193,607 from \$4,828,289 in 2010. (Figure 2.1b). Utility expenditures accounted for 20.8% of the total low-income program expenditures.

Aggregate program savings increased by 3%, from 119,100 MBtu in 2010 to 122,958 MBtu in 2011.

Electricity savings totaled 4,739,445 kWh for the program overall (Figure 2.2a) – utility funding was credited with 1,569,392 (33.1% of the total) kWh (Fig 2.2b).

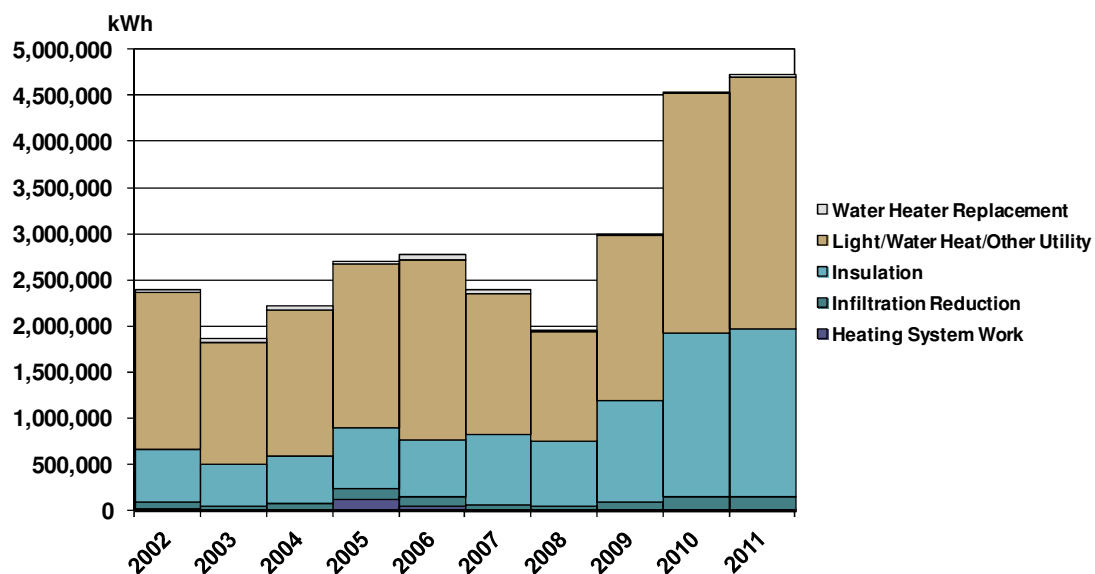


Figure 2.2a First Year Energy Savings (kWh)

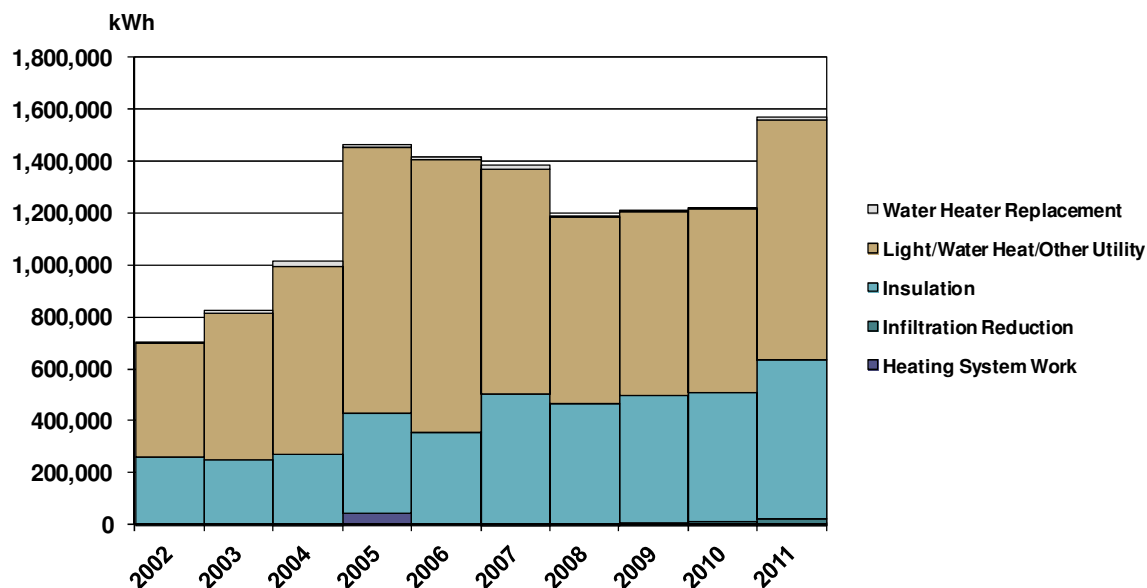


Figure 2.2b Utility First Year Energy Savings (kWh)

Natural gas savings totaled 910,992 therms for the program overall (Figure 2.2c) – utility funding was credited with 360,869 (39.6% of the total) therms (Fig 2.2d).

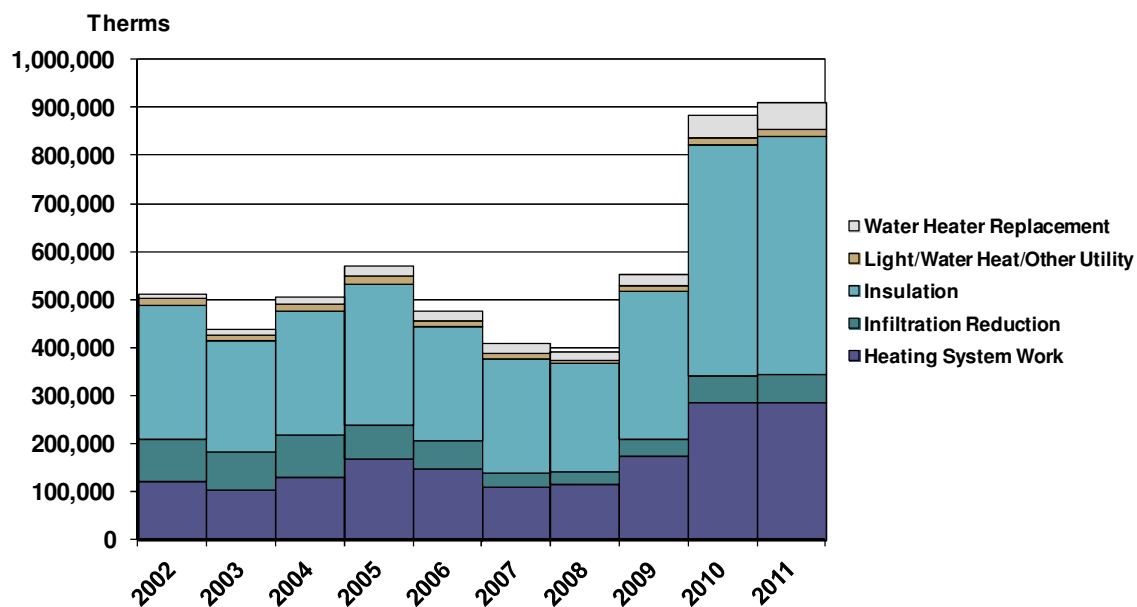


Figure 2.2c First Year Energy Savings (therms)

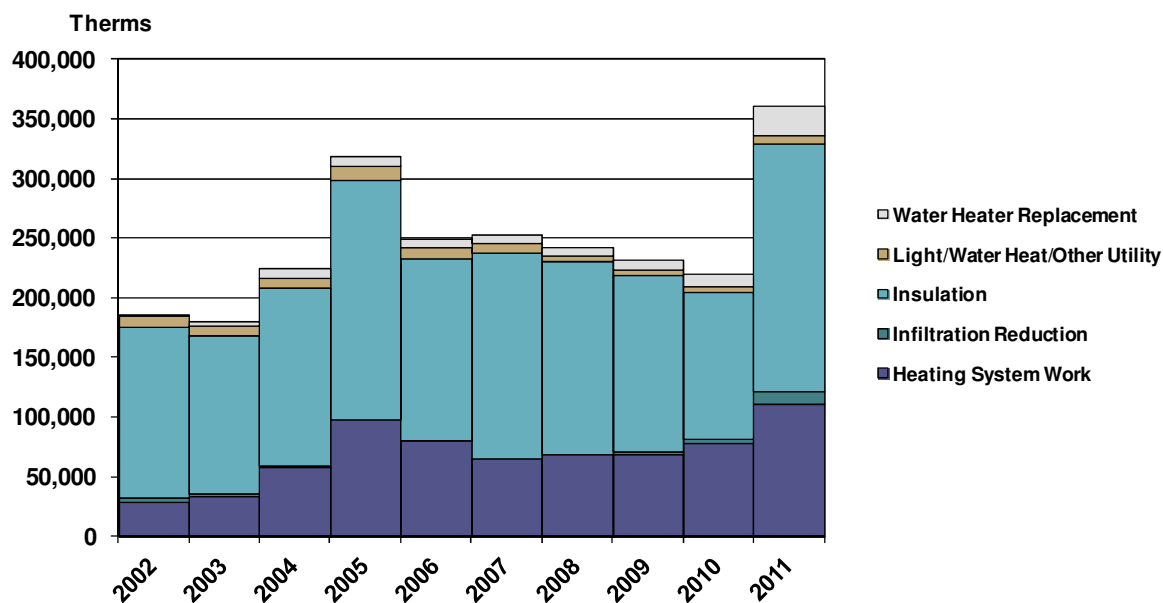


Figure 2.2d Utility First Year Energy Savings (therms)

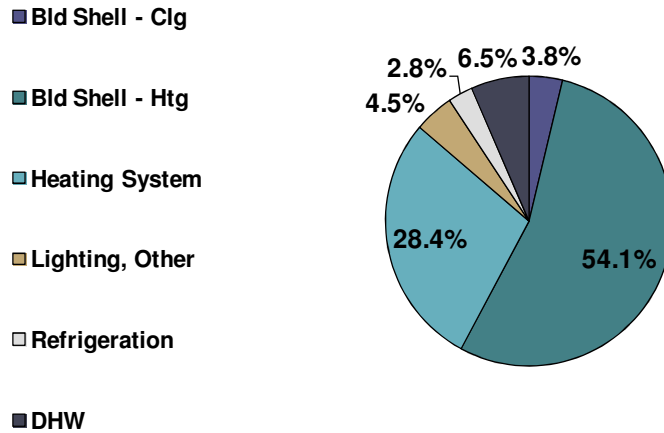


Figure 2.3a Program Energy Savings by End-Use

Taken together, heating system and shell measures savings accounted for 82.5% of the program savings, on an MBtu basis. Domestic hot water measures accounted for 6.5%, refrigeration measures 2.8%, lighting 4.5% on an MBtu basis.

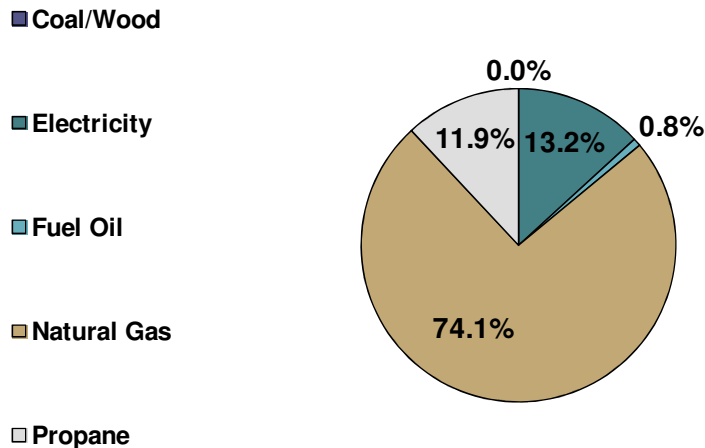


Figure 2.3b Program Energy Savings by Fuel Type

Natural gas savings accounted for 74.1% of savings on an MBtu basis, electricity savings accounted for 13.2% of savings, and propane savings accounted for 11.9% in the CY 2011 program. In fuel units, first-year savings totaled 910,992 therms of natural gas; 4,739,445 kWh of electricity; 160,097 gallons of propane; and 7,193 gallons of fuel oil. First-year peak demand savings totaled 9,602 therms; 1,414 kW summer demand, and 842 kW winter demand.

CLIENT BILL SAVINGS

Client fuel bill savings were estimated using 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.

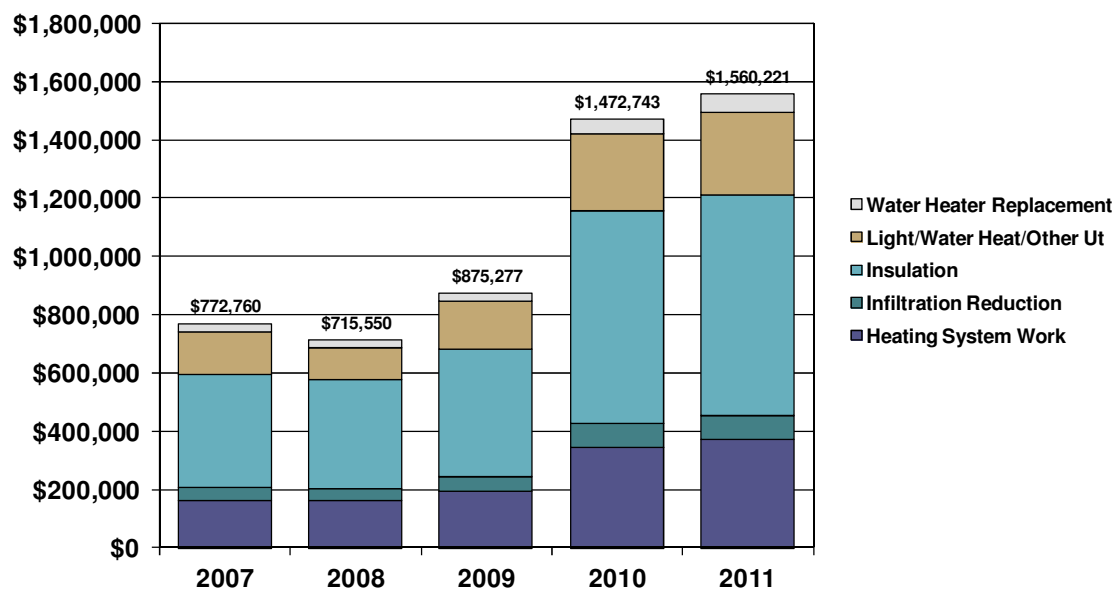


Figure 2.4a First Year Client Fuel Cost Savings (Nominal Dollars)

The nominal first year client energy bill savings totaled \$1,560,221 in 2011 (Figure 2.4a).

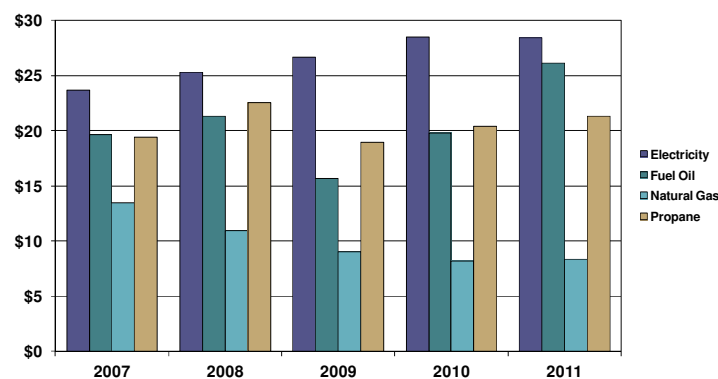


Figure 2.4b Average Fuel Cost (Nominal Dollars)

Electricity prices were essentially unchanged from CY 2010. Natural gas prices increased by 2.4% for (Figure 2.4b) – taken together, these fuels account for 78% of client bill savings (Figure 2.5a). Prices increased by 32% for fuel oil and 4.6% for propane prices.

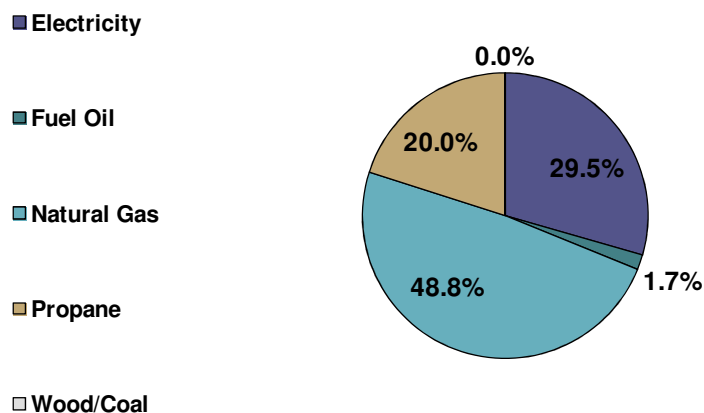


Figure 2.5a Client Bill Savings by Fuel Type

Natural gas savings provided the bulk of client savings at 48.8% of the total client bill savings, electricity accounted for 29.5%, propane accounted for 20%, and fuel oil provided 1.7% (Figure 2.5a).

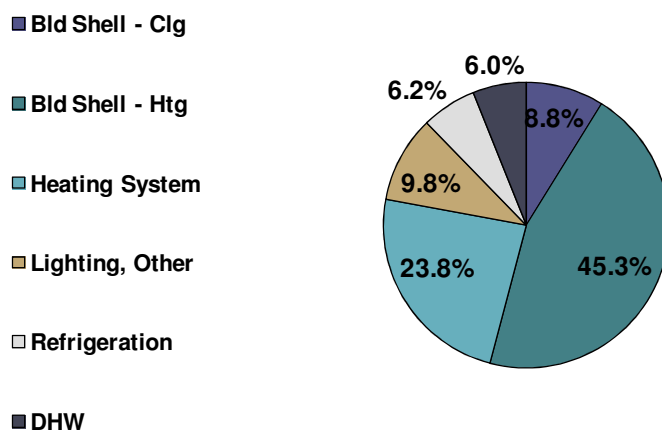


Figure 2.5b Client Bill Savings by End Use

Approximately 45% of client bill savings are attributable to the heating impacts of shell measures (insulation and infiltration reduction), and 24% due to heating system work (Figure 2.5b). Taken together, heating impacts from shell improvements and heating system measures accounted for 69% of total client bill savings.

UTILITY FUNDING IMPACTS

Utility funding reached 2,154 households, or 47.5% of all dwellings weatherized by the program (Table 2.1). Utility expenditures for labor and material totaled \$7,487,476; an additional \$706,131 was spent for program support. The average utility expenditure for materials and labor was \$3,476 for households receiving these measures.

Fifteen dwellings received minor miscellaneous insulation measures – these averaged less than \$50 in expenditures and savings were not assessed for these cases. Consequently a total of 2,169 dwellings received some utility funding. The total expenditures, including the \$706,131 spent for support averaged across 2,169 dwellings averaged \$3,776 per unit.

Table 2.1 Utility Expenditures and Counts of Dwellings with Impacts

Utility	Total Expenditures		Counts of Dwellings With Impacts					
	Excluding Program Support	With Program Support	Electric Impacts	Pct of Prg	Gas Impacts	Pct of Prg	Total	Pct of Prg
Intersate Pwr & Lt	\$ 2,973,791	\$ 3,269,007	906	20.3%	595	16.1%	1,088	24.0%
Black Hills Corp	\$ 453,110	\$ 493,988			163	4.4%	163	3.6%
MidAmerican	\$ 4,060,576	\$ 4,430,613	887	19.9%	943	25.5%	1,153	25.4%
Total Utilities	\$ 7,487,476	\$ 8,193,607	1,795	40.3%	1,701	46.0%	2,154	47.5%

Note: expenditures exclude utility administration costs

Utility-funded measures accounted for 33.1% of all energy savings for electricity and 39.6% of gas savings. Utility-funded measures saved a total of 1,569,392 kWh, averaging of 874 kWh of electricity for the 1,795 dwellings with utility-funded electricity measures. Utility-funded gas measures saved 360,869 therms, averaging 212 therms for the 1,701 dwellings with these measures. Utility-funded measures installed reduced peak electricity demand by 487 kW in the summer and 258 kW in the winter, and provided 3,807 peak-day therms of gas savings.

Utility-funded measures yielded first-year client bill savings of \$454,869, averaging \$211 per dwelling that received utility-funded measures. Savings averaged \$85 per household for utility-funded electricity measures, and \$178 for gas measures.

Table 2.2 First Year Fuel and Client Bill Savings Impacts from Utility-Funded Measures

Utility	First Yr Fuel		Summer Demand		Winter Demand		First Year Fuel Cost	
	Savings	Pct of Prg	Savings	Pct of Prg	Savings	Pct of Prg	Savings	Pct of Prg
Electricity	(kWh)		(kW)		(kW)			
Intersate Pwr & Lt	761,000	16.1%	244	17.3%	127	15.1%	\$ 73,966	16.1%
MidAmerican	807,067	17.0%	243	17.2%	131	15.6%	\$ 78,375	17.1%
Total Utilities	1,569,392	33.1%	487	34.4%	258	30.7%	\$ 152,466	33.2%
Gas	Therms				Peak Day Therms			
Intersate Pwr & Lt	139,469	15.3%			1,495	15.6%	\$ 116,499	15.3%
Black Hills Corp	24,916	2.7%			260	2.7%	\$ 20,879	2.7%
MidAmerican	196,485	21.6%			2,052	21.4%	\$ 165,026	21.7%
Total Utilities	360,869	39.6%			3,807	39.6%	\$ 302,403	39.7%

Figure 2.6 provides a average utility funding and percentages dwellings with utility funding for the past five years.

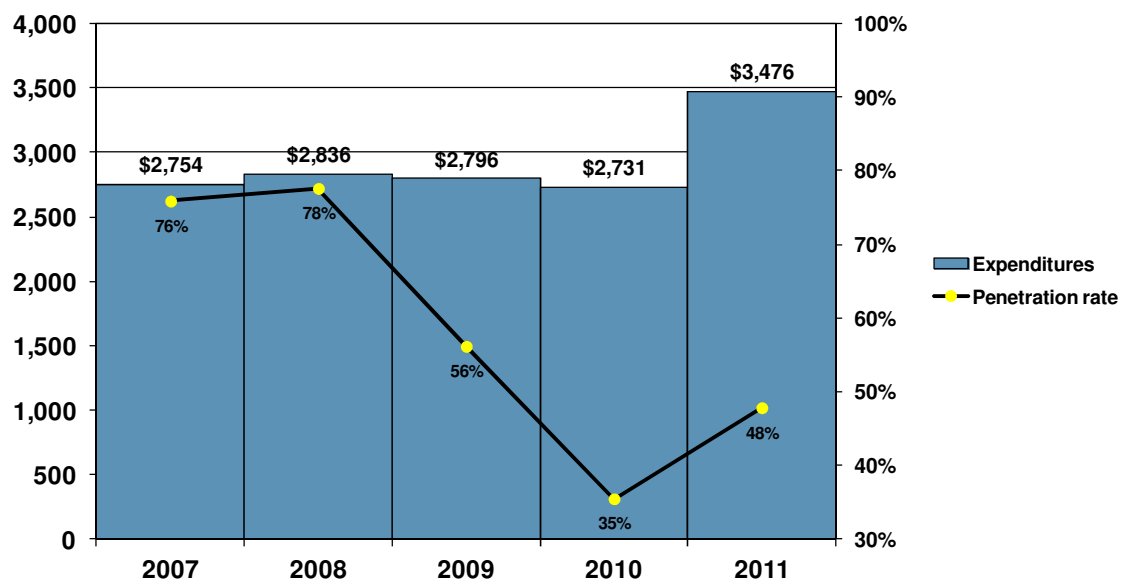


Figure 2.6 Average Utility Spending on Materials and Labor (excluding Support), and Percentage of Homes Receiving Utility-Funded Measures with Impacts

Table 2.3 provides the percentages of total expenditures for the types of measures that were funded by the utilities.

Table 2.3 Utility Funding Percentages by Measure

Measure	Expenditures		
	Total	Utility	Utility Percentage
Wall Insulation	\$4,866,181	\$1,576,285	32.4%
Attic Insulation	\$4,347,416	\$1,402,234	32.3%
Floor/Crawlspace Insulation	\$1,575,463	\$531,412	33.7%
Bandjoist Insulation	\$332,256	\$121,636	36.6%
Infiltration Reduction	\$2,357,653	\$288,225	12.2%
High Efficiency Htg Sys Repl.	\$5,902,090	\$1,973,348	33.4%
Electric Htg Sy/Ht Pump Repl.	\$282,489	\$59,808	21.2%
Pipe Wrap	\$16,054	\$5,037	31.4%
Faucet Aerator	\$7,183	\$2,755	38.3%
Shower Head	\$10,001	\$3,377	33.8%
Water Heater Replacement - Hi Ef	\$1,442,223	\$702,797	48.7%
Compact Fluorescent Lighting	\$254,067	\$98,338	38.7%
Exchange Refrigerator	\$778,091	\$232,732	29.9%
Exchange Freezer	\$167,308	\$33,241	19.9%
Repairs	\$2,405,336	\$157,260	6.5%
Programmable Thermostat	\$8,271	\$7,921	95.8%
Htg Sys Tune/Clean	\$271,049	\$41,170	15.2%
Htg Sys Ventilation	\$85,058	\$74,611	87.7%
Water Heater Ventilation	\$200,382	\$43,926	21.9%
Other	\$7,737,555	\$131,364	1.7%
Overall Excluding Support	\$33,046,126	\$7,487,476	22.7%
Support	\$8,932,316	\$706,131	7.9%
Overall Including Support	\$41,978,443	\$8,193,607	19.5%

OVERALL PROGRAM AVERAGE HOUSEHOLD EXPENDITURES AND IMPACTS

The nominal average household expenditures for all dwellings weatherized in 2011 increased by 10.3% to \$9,258 from \$8,392 in 2010 (Figure 2.7). The relative proportion of expenditures by major measure groups has changed little in recent years -- insulation accounted for the largest proportion of total expenditures, followed by support and heating system work. Whole house ventilation was broken out as a separate measure in this report to reflect the impacts of DOE's requirements that ASHRAE 62.2 criteria for indoor air quality be met to the fullest extent possible.

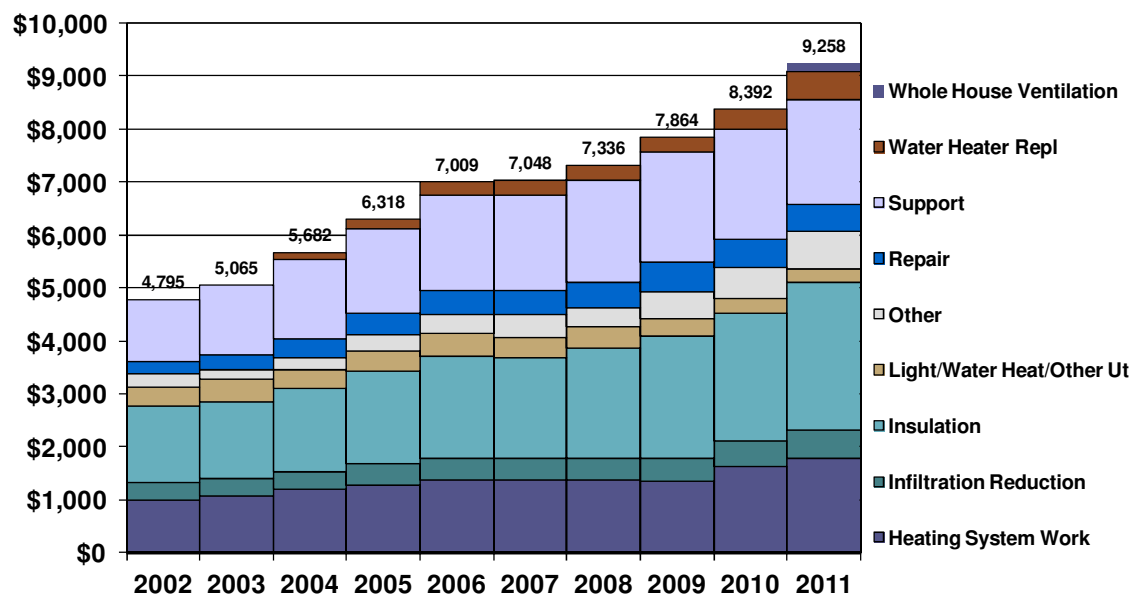


Figure 2.7 Average Program Expenditures per Housing Unit

The average savings per dwelling was 27.1 MBtu for clients weatherized during 2011 (Figure 2.8).

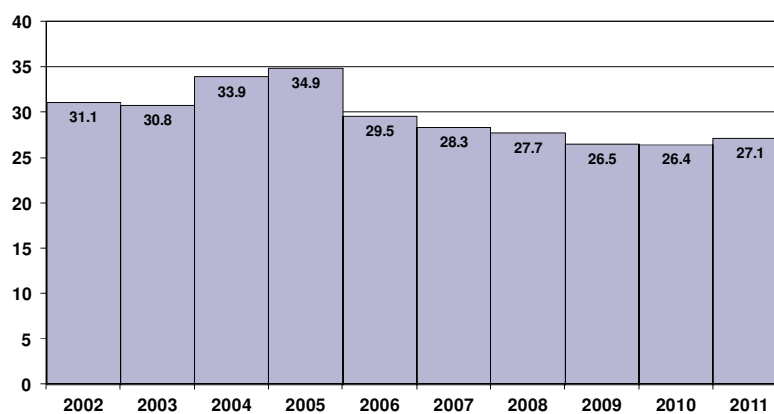


Figure 2.8 Average Energy Savings per Housing Unit (MBtu)

First-year client fuel bill savings averaged \$344 for the CY 2011 program, compared with \$327 per dwelling in 2010 (Figure 2.9).

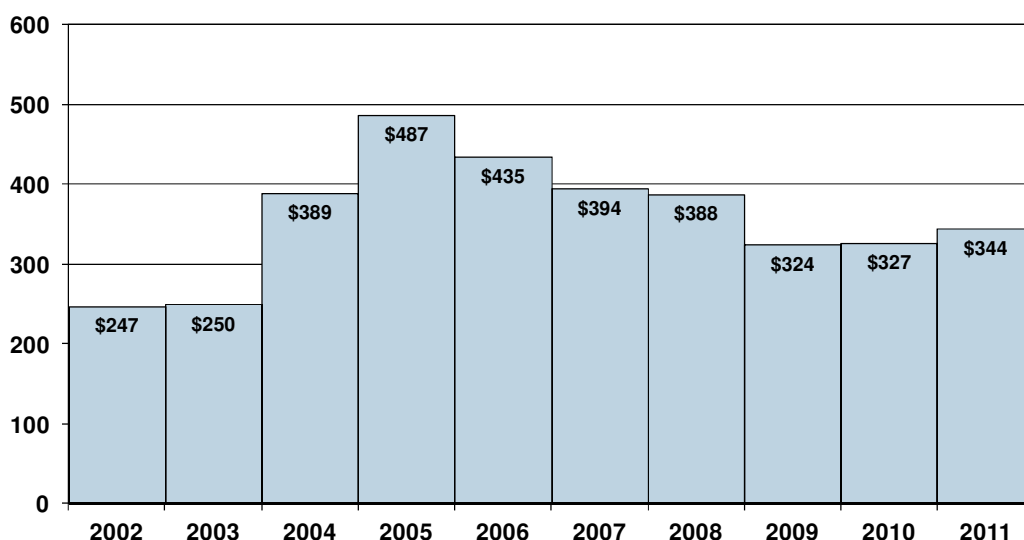


Figure 2.9 Average Annual Client Fuel Bill Savings per Housing Unit

EXPENDITURES AND SAVINGS BY AGENCY

Figure 2.10 shows the average annual energy cost savings by agency. The series are arranged from left to right in the chart according to left to right and top to bottom and in the legend, e.g., Bldg Shell Cooling, then Bldg Shell Heating, then Heating system, etc.

The natural gas savings attained by each agency were adjusted according to results of the natural gas fuel consumption analyses (see Section 3, Fuel Consumption Analysis and Assessment of Agency-Specific Adjustment Factors). The estimated impacts for propane and fuel oil were adjusted using the same factors as those used for natural gas. An electricity fuel consumption analysis was not run for the 2010 program, however estimates developed in the billing analyses of CY 2005 and CY 2006 programs for the algorithm revisions are incorporated in these results.

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.

As shown in Figure 2.10, the statewide average client bill savings was \$344 per dwelling. The average first-year client bill savings widely varied across agencies, from lows of less than \$300 per dwelling for (Threshold, New View, Polk County, and Redrock) to highs exceeding \$400 for SIEDA and Siouxland. The wide variation in average client cost savings is typical of what we've observed in past years.

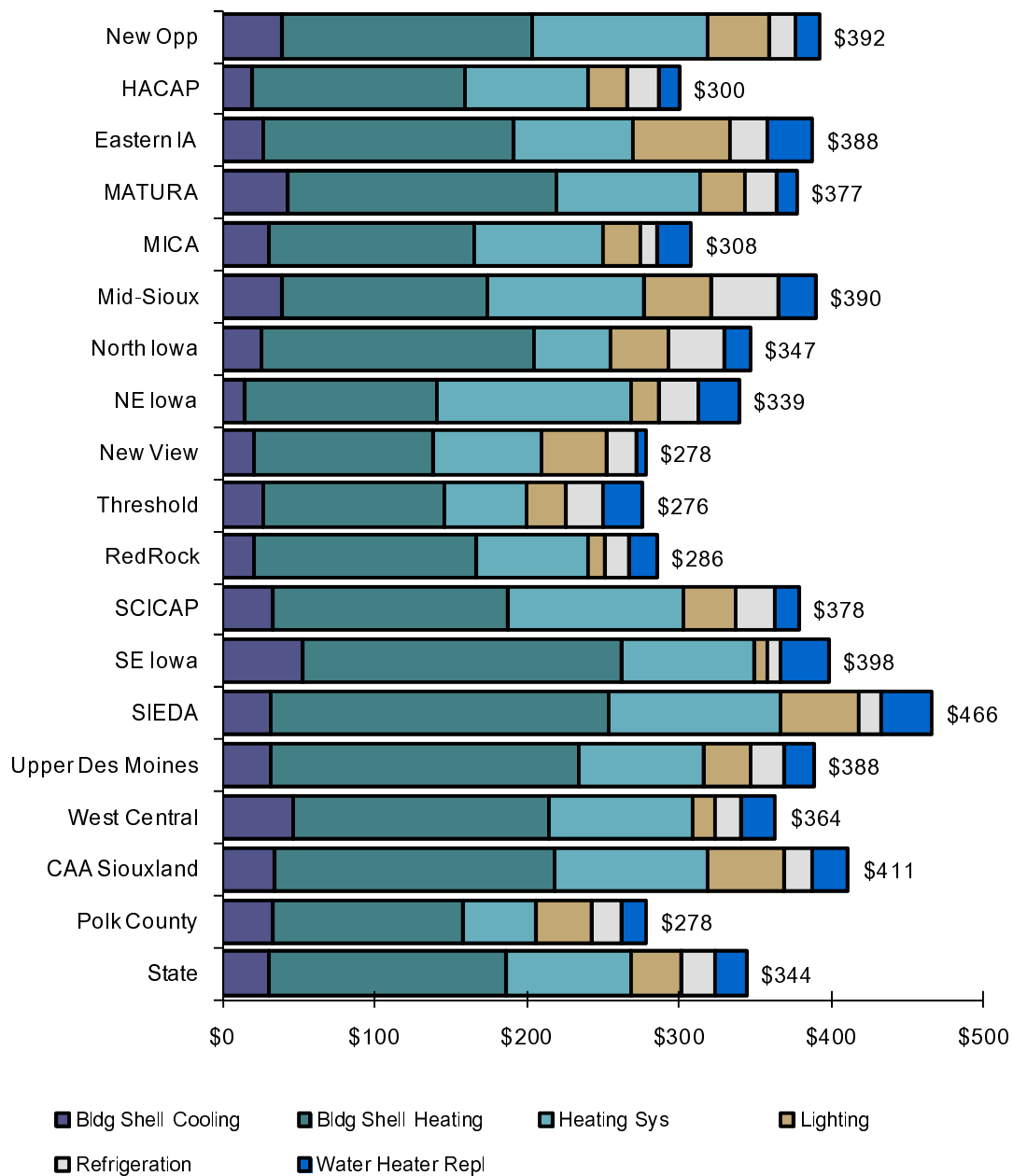


Figure 2.10 Average Annual Fuel Bill Savings per Housing Unit by Agency

Figure 2.11 shows the average expenditures for all households with impacts in 2011, ranging from highs exceeding \$11,000 for HACAP and Eastern Iowa to lows of less of \$8,000 for NE Iowa and New View. The statewide average expenditure was \$9,258 per dwelling.

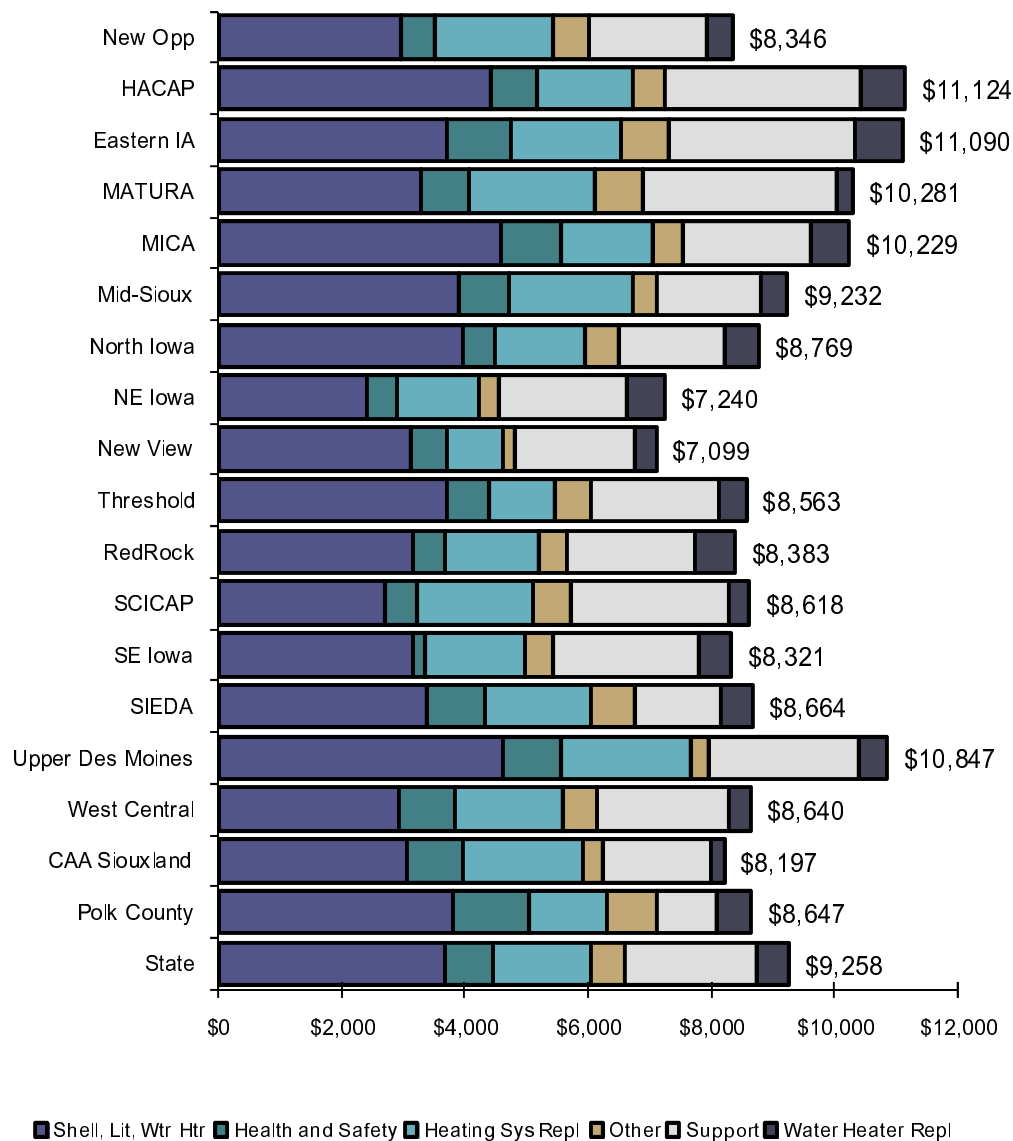


Figure 2.11 Average Expenditures per Housing Unit by Agency

The average installation rates, costs, and savings for energy efficiency and heating and water heating system replacement measures for calendar year programs 2009-2011 are shown in Figures 2.12a and 2.12b.

The installation rates of insulation measures and infiltration reduction in the 2010 program changed little from the previous two years (see Figure 2.12a, left chart).

Figure 2.12a, right chart, shows that the average measure costs increased by a few percent in the 2010 program. The average cost of non-condensing heating system replacements increased for the previous two years. Non-condensing heating systems are installed in dwellings where it is infeasible to install condensing units, and such circumstances may require additional but related expenditures costs be incurred for complete and safe replacements. Most boiler replacements are also represented here, and these tend to have higher average costs.

The average first-year energy gas and electricity savings for each major measure is shown in Figures 12b.

Average natural gas savings changed little between 2010 and 2011, however savings for condensing heating system replacements declined by about 12%. The estimated savings, corrected at the agency level in the billing analysis, is dependent upon several factors, including infiltration rate reduction and pre-weatherization consumption which may affect the base level of savings prior to adjustment. We believe reduction in savings for this measure to be driven primarily by such factors and do not indicative of a long term trend in savings from condensing heating system replacements.

The average electricity savings changed relatively little for electricity measures. Refrigeration appliances removals and exchanges remain the highest savings electricity efficiency measures.

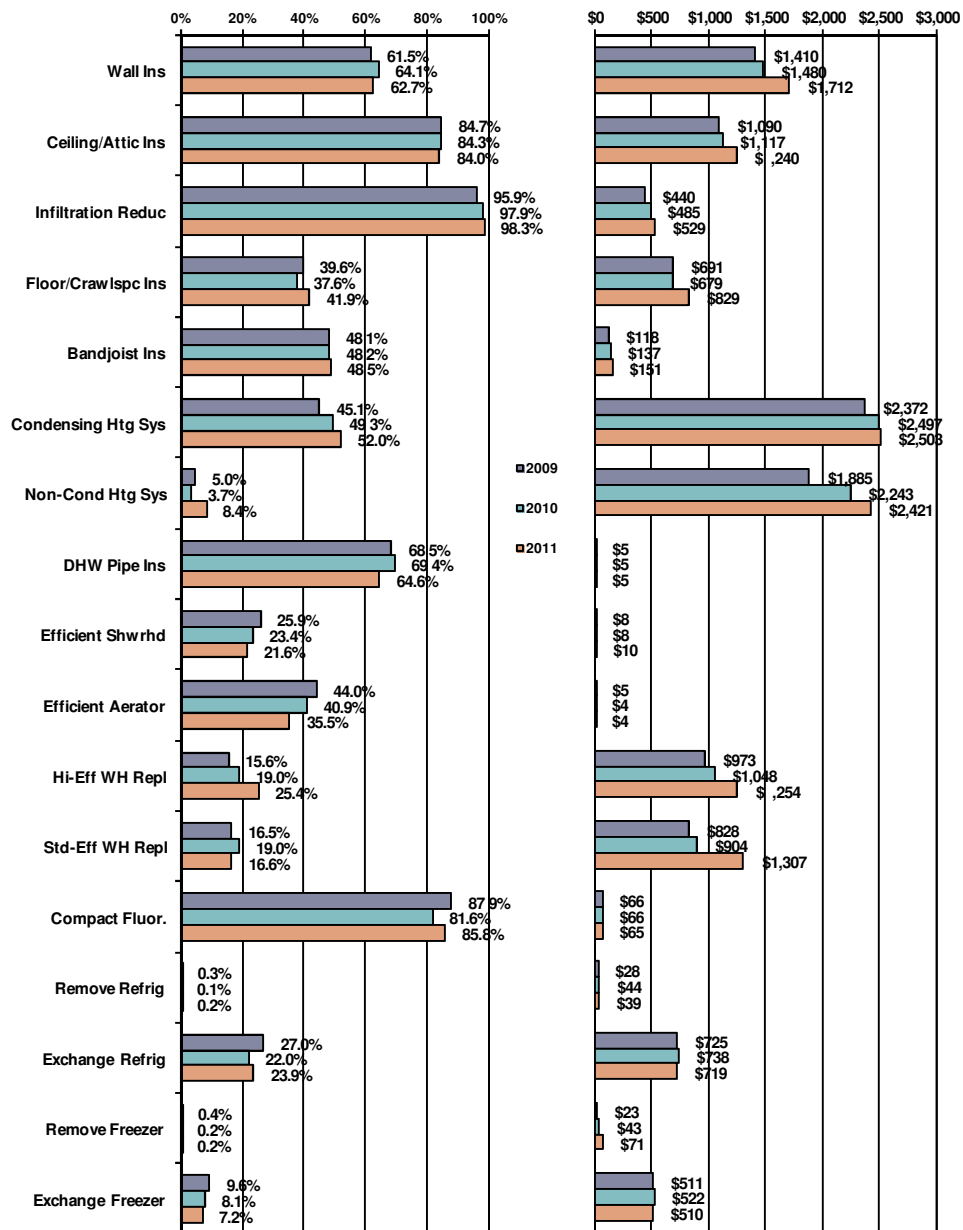


Figure 2.12a Average Installation Rates and Measure Costs of Efficiency Measures, Heating System and Water Heating Replacements

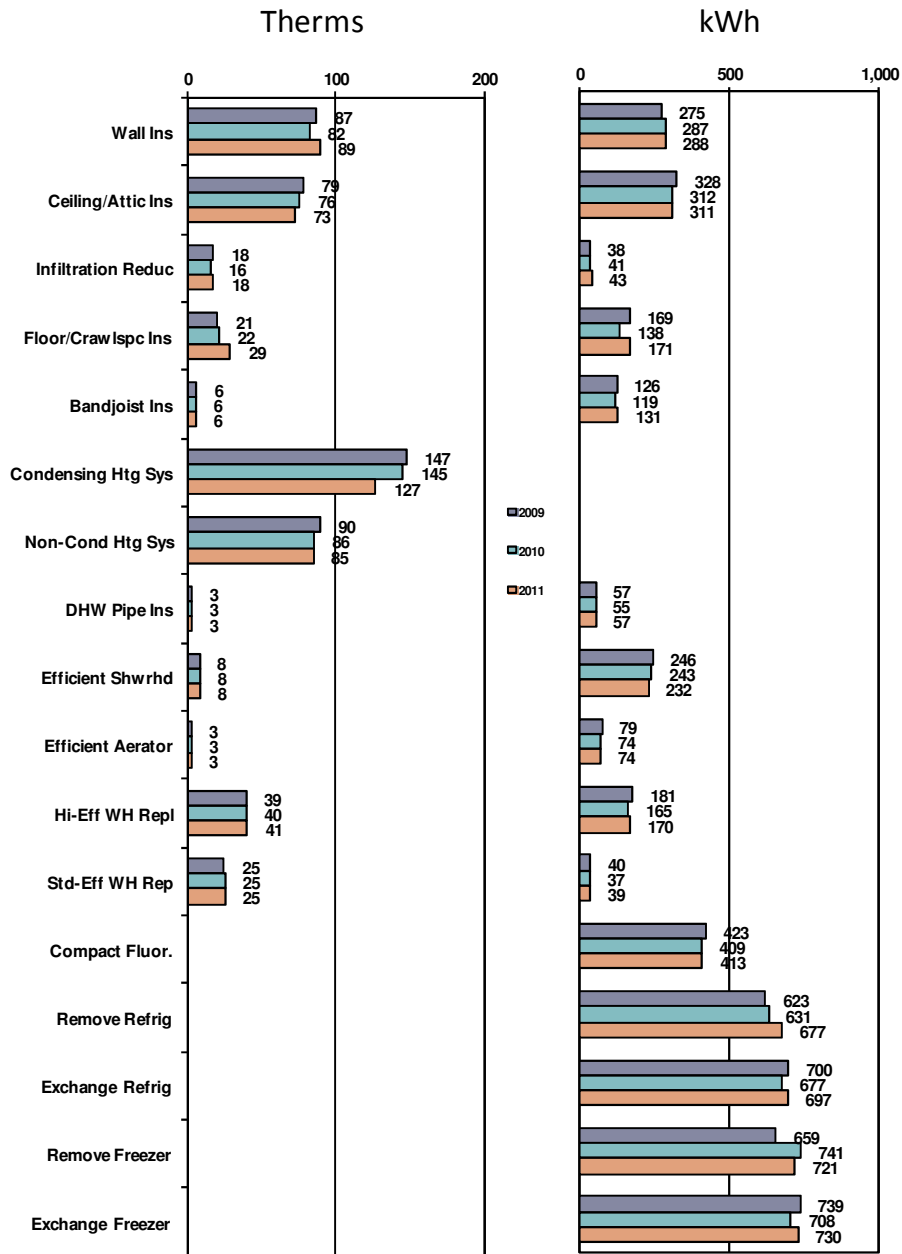


Figure 2.12b Average Gas and Electricity Savings of Efficiency Measures, Heating System and Water Heating Replacements

Table 2.4 provides a listing of the average installation rates of measures (or the percentage of households receiving measures) over the past 10 years. The installation rate of higher-efficiency water heaters increased by 44%, and non-condensing heating system replacements more than double. Other cases where the percentage changes are high correspond to measures with very low installation rates and these are not indicative of major changes in the installation protocols for these measures nor do they have a major influence on savings.

Table 2.4 Installation Rates of Measures

Measure	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Percentage Change in Installation Rate (%)
Insulation and Infiltration Reduction Measures											
Wall Insulation	67.8	66.4	63.3	67.0	65.7	60.8	65.5	61.5	64.3	63.0	-1.9%
Ceiling/Attic Insulation	83.1	84.6	85.3	85.9	85.8	86.4	87.6	84.7	84.5	84.5	0.1%
Floor/Crawlspace Insulation	34.8	36.2	39.2	40.0	39.4	40.5	39.3	40.5	38.6	43.8	13.6%
Bandjoist Insulation	39.7	43.6	40.7	43.9	43.4	48.3	48.0	48.1	48.4	48.8	0.7%
Infiltration Reduction	96.0	97.0	97.3	95.9	94.8	99.7	99.7	96.0	98.1	99.0	0.9%
Heating System Measures											
Htg. Sys. Replacement	44.1	44.2	48.7	50.3	56.3	51.0	49.2	50.1	53.0	60.7	14.7%
High Eff Htg Sys Repl	20.2	25.4	37.7	42.8	45.6	46.2	44.1	45.1	49.3	52.3	6.1%
Std/Unspec Eff Htg Sys Repl	23.9	18.8	11.0	7.5	10.6	4.8	5.1	5.0	3.7	8.4	130.3%
Htg. Sys. Tune and Clean	61.9	62.2	57.1	55.6	54.5	56.9	52.3	50.4	41.5	42.6	2.6%
Heating System Safety Check	35.4	28.5	28.5	26.9	27.9	27.2	27.1	26.9	25.8	24.5	-5.1%
Heating System Ventilation						21.6	20.2	11.2	7.2	13.7	90.7%
Water Heater Measures											
Water Heater Turndown	-----Not Tracked Consistently-----										
Water Heater Wrap	10.3	8.6	6.4	1.2	0.0	0.2	0.1	0.2	0.0	0.0	0.0%
Pipe Wrap	46.7	48.6	55.2	60.7	57.8	61.4	63.5	68.5	69.4	73.6	6.1%
Shower Head	19.7	18.4	20.7	26.0	24.5	28.1	24.1	26.4	23.9	24.8	3.6%
Faucet Aerator	33.3	32.8	32.9	40.6	36.7	43.0	40.8	44.1	41.0	38.7	-5.5%
Water Heater Replacement	14.9	18.5	21.0	26.5	34.1	36.0	33.7	32.1	38.0	48.4	27.3%
Hi-Eff Wtr Htr Repl.	1.2	6.3	10.1	15.0	19.4	21.4	19.7	15.6	19.0	27.3	43.6%
Std-Eff Wtr Htr Repl.	13.6	12.2	10.9	11.5	14.7	14.6	13.9	16.5	19.0	21.1	11.0%
Water Heater Ventilation						13.3	12.4	13.1	19.0	20.6	8.3%
Water Heater Repair	6.8	13.1	15.0	14.5	12.3	7.9	6.9	8.0	8.1	7.8	-3.8%
Lighting Measures											
Compact Fluorescent Bulbs	66.0	80.0	83.5	87.2	89.4	89.1	84.3	87.9	81.6	86.2	5.7%
Refrigeration Measures											
Refrigerator Removal	0.6	1.6	1.0	0.7	1.2	1.3	0.7	0.3	0.1	0.2	125.0%
Refrigerator Exchange	31.4	37.1	39.6	42.6	44.0	37.5	31.3	27.0	22.0	24.0	8.9%
Freezer Removal	0.8	1.0	1.1	1.2	1.0	1.0	0.5	0.4	0.2	0.2	-20.0%
Freezer Exchange	10.4	14.3	16.6	18.5	17.2	15.4	11.1	9.6	8.1	7.3	-9.6%
Health and Safety (other than heating & water heating measures listed above)											
CO Detector	30.4	34.5	36.6	38.4	42.3	49.9	47.1	59.3	67.4	76.7	13.8%
Smoke Detector	5.9	8.9	11.3	10.9	14.8	17.5	17.8	30.7	35.4	45.2	27.6%
Exhaust Ventilation	46.6	48.4	51.2	61.2	64.3	60.0	58.5	67.6	77.4	81.0	4.6%
Fuses	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.6	257.1%
Repairs	80.3	84.6	85.9	88.5	89.7	85.9	87.6	88.1	82.9	88.5	6.7%

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 compact fluorescent lighting, heating system replacements, and refrigeration measures. These are shown in Figures 2.13a through 2.13d.

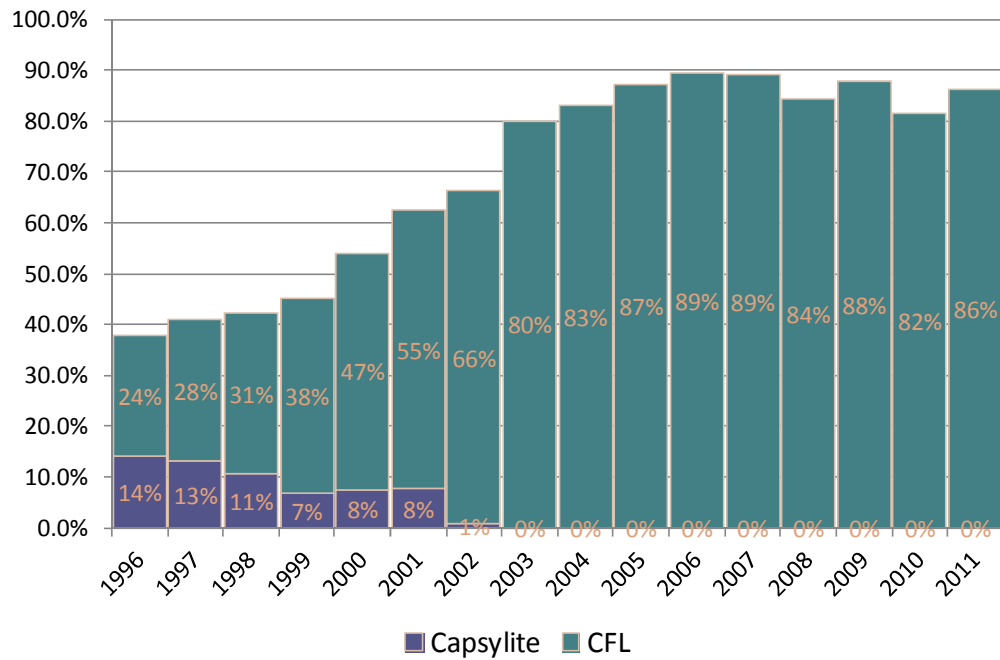


Figure 2.13a Percentage of Housing Units Receiving Lighting Measures

Figure 2.13a 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; currently 86% of dwellings receive lighting from the program.

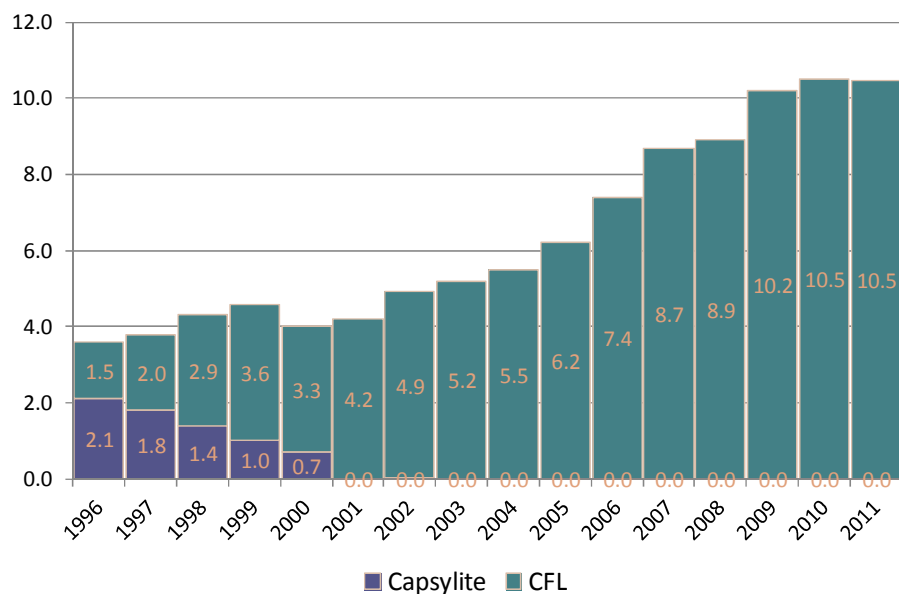


Figure 2.13b Average Number of Bulbs Installed for Housing Units Receiving Lighting Measures

The average number of bulbs installed in dwellings that received at least one lighting measure continues to increase, averaging 10.5 bulbs per house 2011, unchanged from the 2010 program (Figure 2.13b).

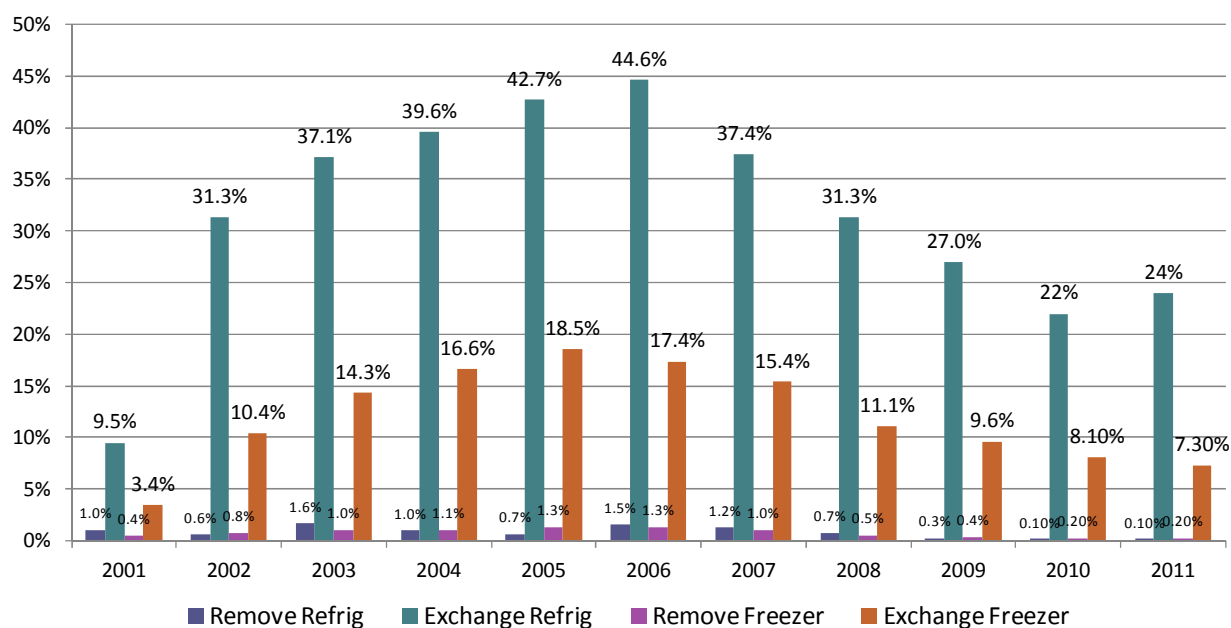


Figure 2.13c Installation Rates of Refrigeration Measures

Figure 2.13c shows the initial ramp up of refrigeration measure installation rates as well as declines in recent years. It is likely that the efficiency of in-place units is steadily increasing in the population as

clients replace failing units prior to participating in the weatherization program, resulting in fewer cases of cost-effective replacements.

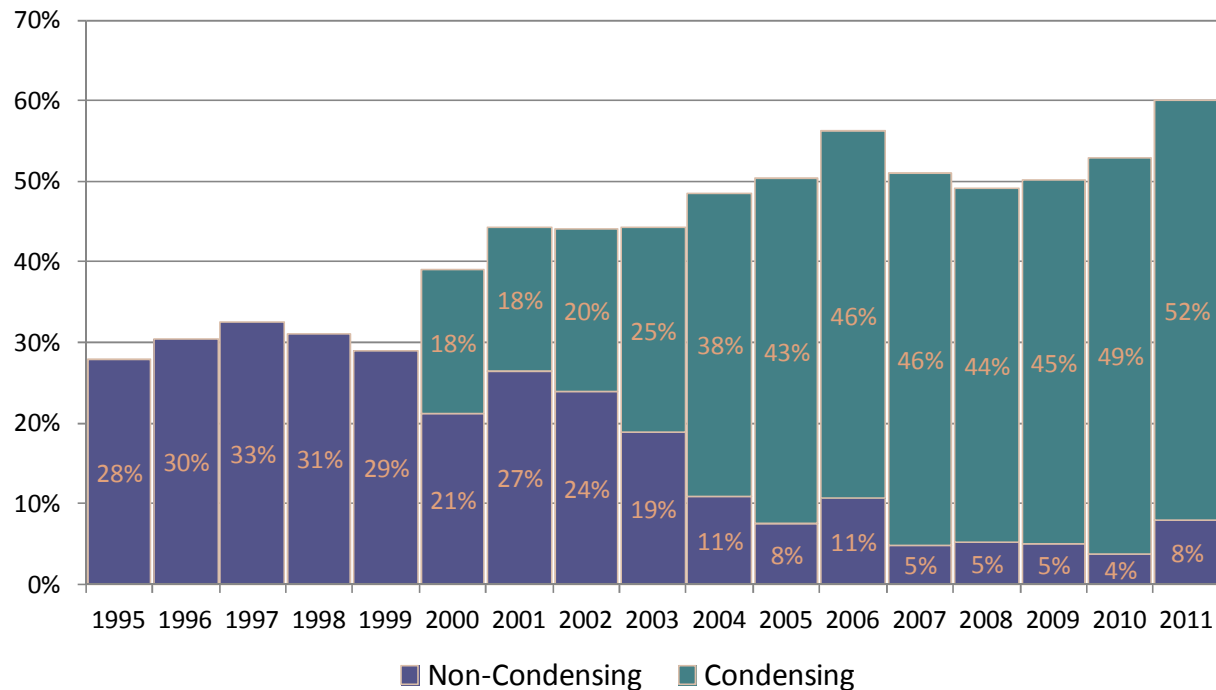


Figure 2.13d Installation Rates of Natural Gas Heating System Replacements

Figure 2.13d shows the transition to condensing (90+ efficiency) furnaces from non-condensing (80% efficiency) heating systems. Overall, 60% of dwellings with natural gas heating received a heating system replacement during 2011, with the vast majority of these being condensing units. The installation rates of both condensing and non-condensing heating system replacements were higher in 2011 than preceding years.

SAVINGS OF WATER HEATER, LIGHTING, AND REFRIGERATION MEASURES

Table 2.5 shows the installation rates for energy efficiency measures other than space heating or cooling. These measures include water heater (except water heater replacements which are primarily health and safety measures), lighting, and refrigeration measures. Statewide, client bill savings averaged \$63 for these measures in 2011. The highest average bill savings were attained by Mid-Sioux and Eastern IA at nearly \$100 per dwelling. SE Iowa had the lowest average savings for these measures, averaging \$20 per dwelling.

Table 2.5 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		Ex-change Refrig	Ex-change Freezer	Remove Refrig	Remove Freezer	
New Opp	63%	0%	0%	100%	17%	10%	0%	0%	\$60.73
HACAP	34%	0%	0%	77%	25%	6%	0%	0%	\$48.21
Eastern IA	78%	41%	72%	95%	31%	7%	0%	0%	\$99.97
Matura	85%	9%	0%	83%	24%	7%	0%	0%	\$53.64
MICA	59%	33%	45%	85%	12%	5%	0%	0%	\$44.16
Mid-Sioux	82%	37%	70%	87%	36%	21%	2%	2%	\$99.40
North Iowa	93%	44%	83%	99%	37%	13%	1%	0%	\$81.56
NE Iowa	72%	12%	16%	65%	23%	13%	1%	0%	\$51.07
New View	93%	0%	0%	95%	27%	3%	0%	0%	\$63.68
Threshold	95%	47%	85%	95%	29%	8%	0%	0%	\$60.94
Redrock	3%	4%	18%	58%	22%	2%	0%	0%	\$27.57
SCICAP	50%	52%	85%	86%	26%	10%	0%	1%	\$66.75
SE Iowa	71%	0%	0%	48%	11%	1%	0%	0%	\$19.93
SIEDA	67%	75%	76%	77%	16%	3%	1%	0%	\$80.93
Upper Des Moines	97%	0%	0%	96%	24%	8%	0%	0%	\$56.19
West Central	71%	45%	81%	88%	14%	9%	0%	1%	\$44.85
CAASiouxland	92%	56%	48%	94%	21%	7%	0%	0%	\$83.19
Polk County	87%	6%	14%	86%	26%	3%	0%	0%	\$58.42
State	73%	25%	39%	86%	24%	7%	0%	0%	\$61.95

Table 2.6 shows details of the average installed costs for each measure over the past 10 years of the joint program. The average insulation costs increased by 11% to 20%, and water heater replacement costs increased by between 12% and 15%. Other cases with large percentage changes in costs tend to be those associated with very few installations or costs, and have little effect on the overall program costs.

Table 2.6 Average Measure Costs

Measure	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Recent Year Change (%)
Insulation and Infiltration Reduction Measures											
Wall Insulation	875	919	1017	1089	1183	1136	1228	1409	1477	1712	16.0%
Ceiling/Attic Insulation	684	664	698	763	840	898	974	1089	1115	1240	11.2%
Infiltration Reduction	340	342	353	402	439	410	410	439	484	528	9.1%
Floor/Crawlspace Insulation	423	391	474	498	615	600	579	676	662	797	20.4%
Bandjoist Insulation	81	79	85	97	106	113	118	118	136	151	11.0%
Heating System Measures											
Htg. Sys. Replacement											
Condensing Htg Sys Repl	2,129	2,103	2,160	2,229	2,212	2,434	2,498	2,372	2,497	2,503	0.2%
Non-Cond Htg Sys Repl	1,696	1,872	1,965	2,195	1,891	2,020	1,997	1,885	2,243	2,421	7.9%
Htg. Sys. Tune and Clean	82	80	81	85	90	89	98	93	114	141	23.9%
Heating System Safety Check	69	75	97	77	82	89	91	98	94	127	35.4%
Heating System Ventilation	-----Not Tracked Separately -----						132	130	128	138	7.3%
Water Heater Measures											
Water Heater Wrap	17	16	18	39	0	0	0	0	0	0	0.0%
Pipe Wrap	7	7	6	5	5	5	5	5	5	5	-3.7%
Shower Head	8	7	8	8	8	8	8	8	8	9	8.8%
Faucet Aerator	5	5	5	4	4	4	4	5	4	4	-4.0%
Water Heater Replacement											
Hi-Eff Wtr Htr Repl.	816	521	615	710	774	864	898	973	1048	1171	11.7%
Std-Eff Wtr Htr Repl.	422	444	554	631	696	726	759	828	904	1035	14.5%
Water Heater Ventilation	-----Not Tracked Separately -----						151	164	223	216	-3.0%
Water Heater Repair	85	137	143	140	145	130	105	100	107	94	-12.1%
Lighting Measures											
CFL Bulbs (avg spent per home)	62	74	48	48	39	48	54	66	66	65	-1.1%
Refrigeration Measures											
Refrigerator Removal	31.3	28	23	25	39	33	31	28	44	39	-9.8%
Refrigerator Exchange	588	591	596	615	683	713	712	725	738	719	-2.5%
Freezer Removal	31.3	30	23	53	31	32	33	23	43	71	67.6%
Freezer Exchange	397	386	396	399	460	494	503	511	522	510	-2.3%
Health and Safety (other than heating & water heating measures listed above)											
CO Detector	53	53	53	53	53	50	48	50	54	51	-4.6%
Smoke Detector	25	29	31	30	31	29	26	30	35	44	24.9%
Exhaust Ventilation	89	116	128	191	229	250	295	320	462	436	-5.5%
Fuses	23	33	20	68	55	34	53	56	64	71	10.3%
Repairs	275	318	420	461	503	546	576	621	628	603	-4.0%
Support	1,178	1405	1,584	1,734	1,855	1,866	2,028	2,135	2,280	2,415	5.9%
Note: Kneewall insulation was reported with wall insulation prior to 2007, it is now bundled with Ceiling./Attic Insulation											

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AVERAGE COSTS OF MAJOR MEASURES BY AGENCY

Figures 2.14-2.17 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

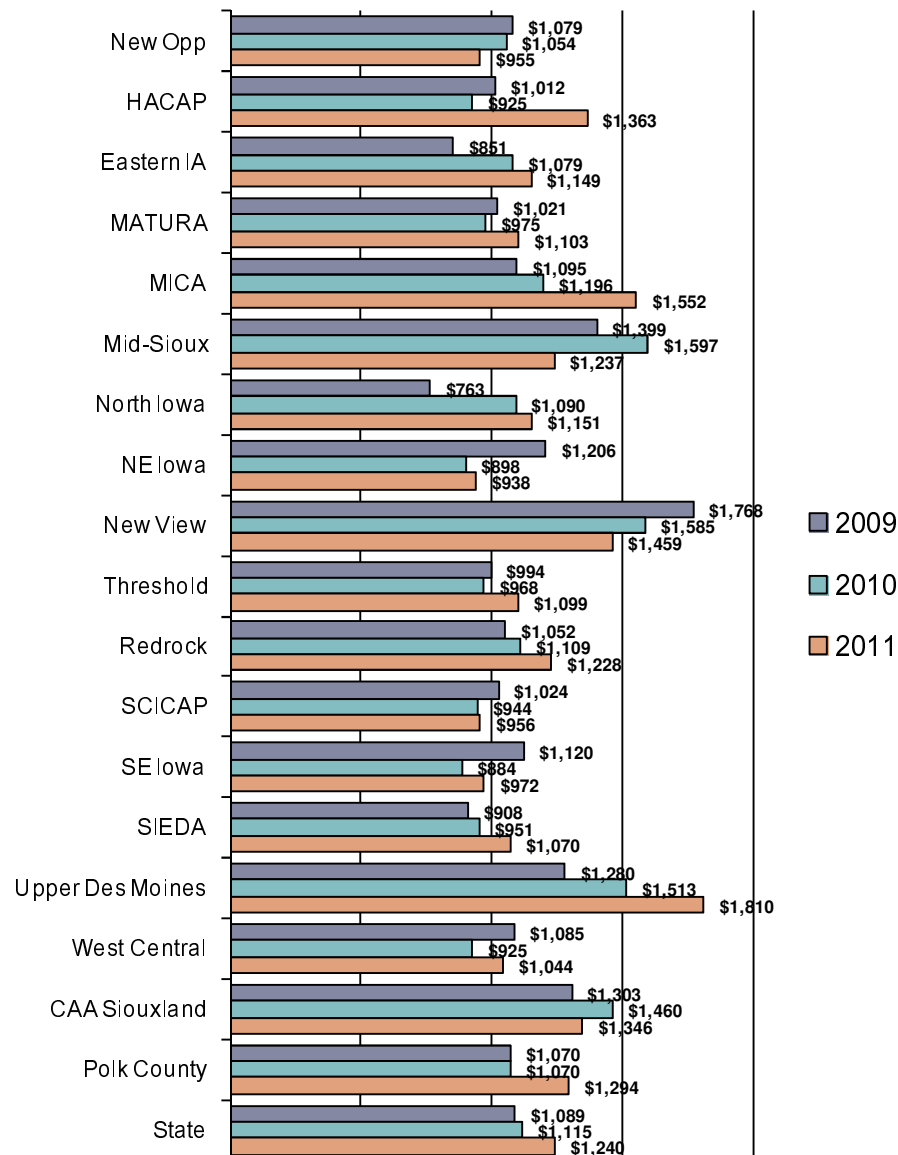


Figure 2.14a Average Program Expenditures on Ceiling Insulation by Agency

Figures 2.14a and 2.14b show the average installed costs for ceiling and attic insulation (including cavity-fill blown attic insulation). The statewide average cost for ceiling insulation was \$1,240 in 2011.

Upper Des Moines reported the highest average expenditure at \$1,810 per dwelling followed by MICA at \$1,552. The lowest average spending was reported by NE Iowa, SCICAP, New Opportunities, and SE Iowa, averaging between \$938 and \$972.

Figure 2.14b shows the statewide average expenditure of utility funds on ceiling and attic insulation was \$959 in 2011. Upper Des Moines and MICA reported the highest expenditures, at \$1,370 and \$1,267, respectively. NE Iowa reported the lowest average utility expenditures for ceiling and attic insulation (\$597).

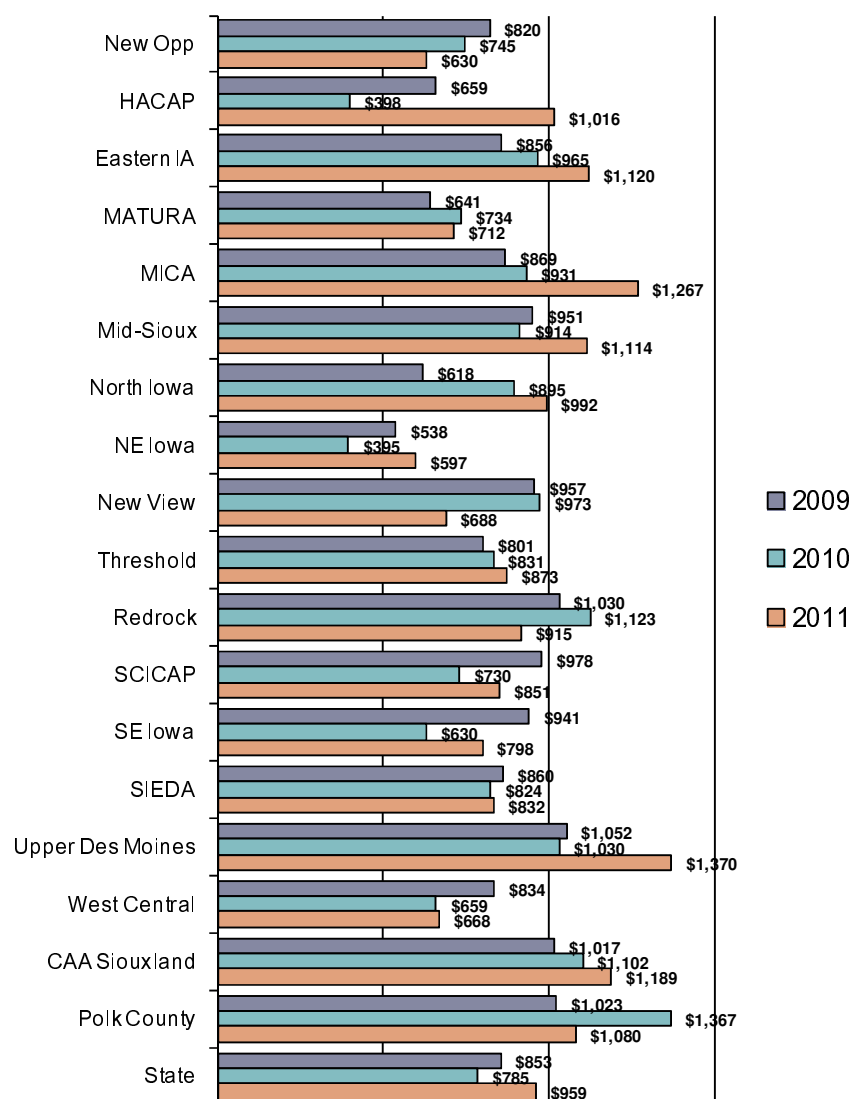


Figure 2.14b Average Utility Expenditures on Ceiling Insulation by Agency

WALL INSULATION EXPENDITURES

Figures 2.15a and 2.15b show the average installed costs for wall insulation. The overall average expenditure for wall insulation increased to \$1,712 in CY 2011. HACAP reported the highest average expenditures at \$2,571; next highest was MICA with an average expenditure of \$2,400. SCICAP spent the least, averaging \$926 per dwelling.

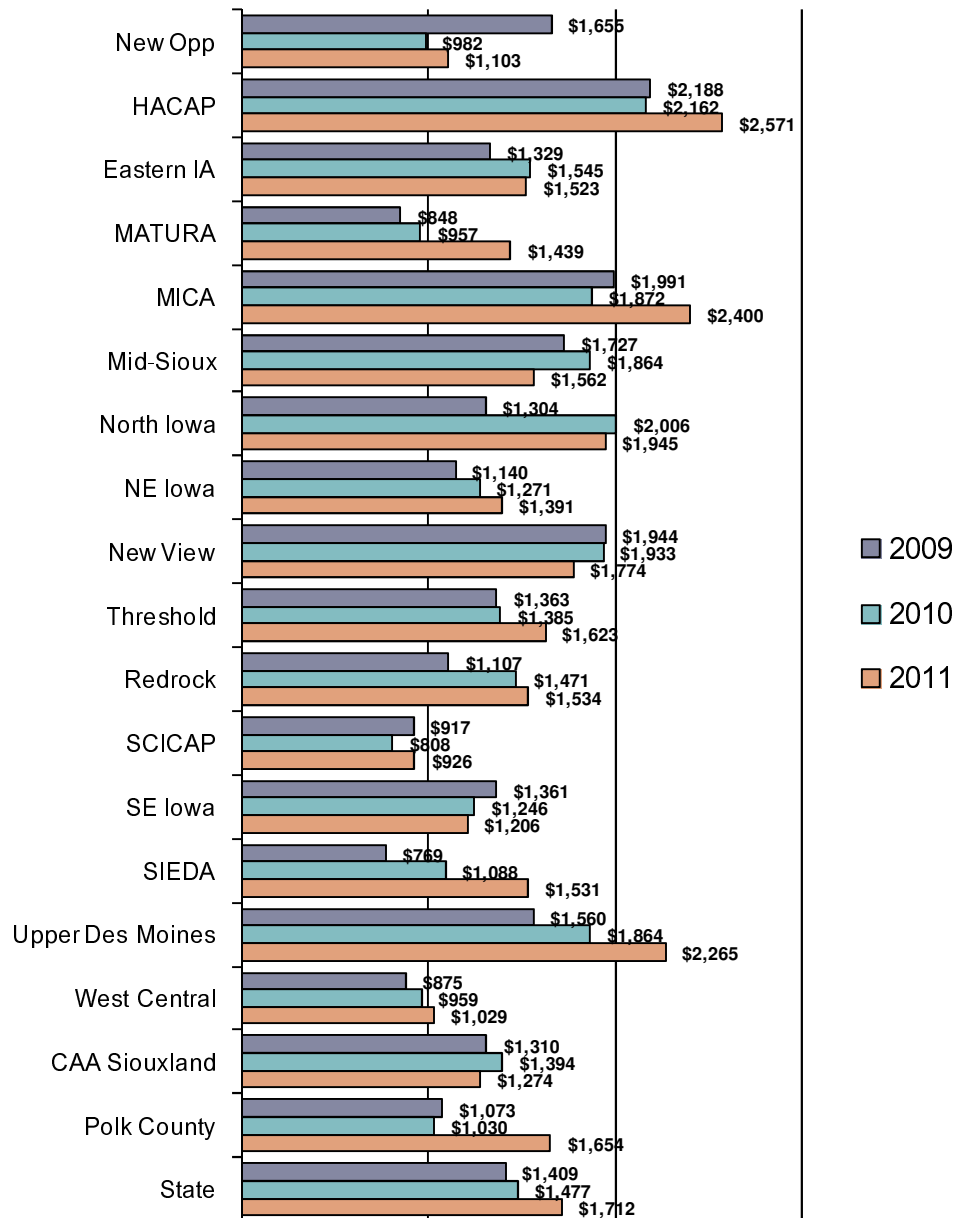


Figure 2.15a Average Program Expenditures on Wall Insulation by Agency

Statewide, the average expenditures for utility-funded wall insulation averaged \$1,323 in CY 2011. HACAP reported spending the most, averaging \$2,234; West Central spent the least, at \$638 dwelling.

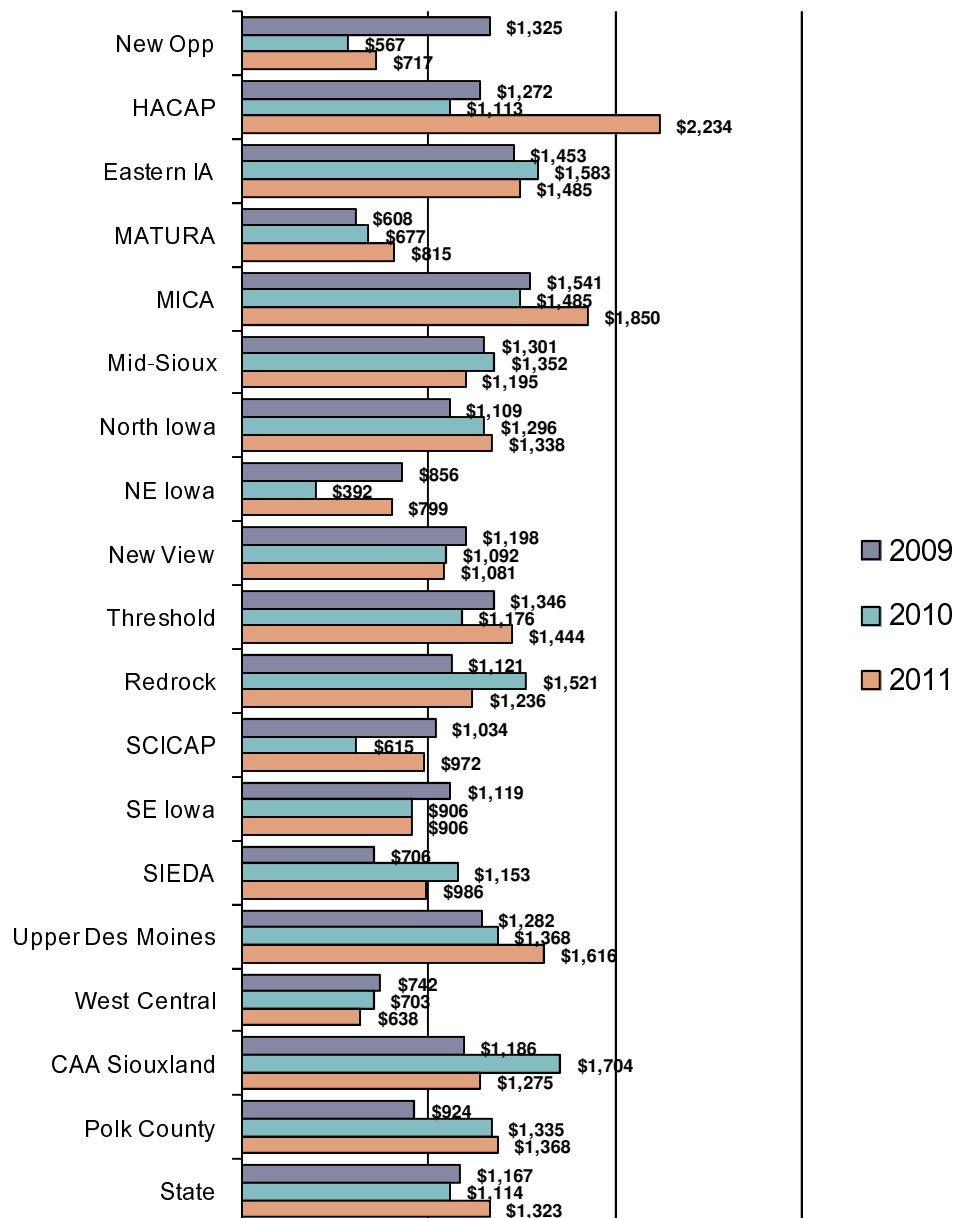


Figure 2.15b Average Utility Expenditures on Wall Insulation by Agency

FLOOR/CRAWLSPACE INSULATION

Figures 2.16a and 2.16b show the average expenditures for floor/crawlspace insulation. Statewide, the cost for floor/crawlspace insulation averaged \$797. The highest average expenditures, \$1,984, were reported by Redrock – these may be attributable in part to mobile home belly insulation (25% of this agency's jobs were mobile homes). West Central spent the least, averaging \$303.

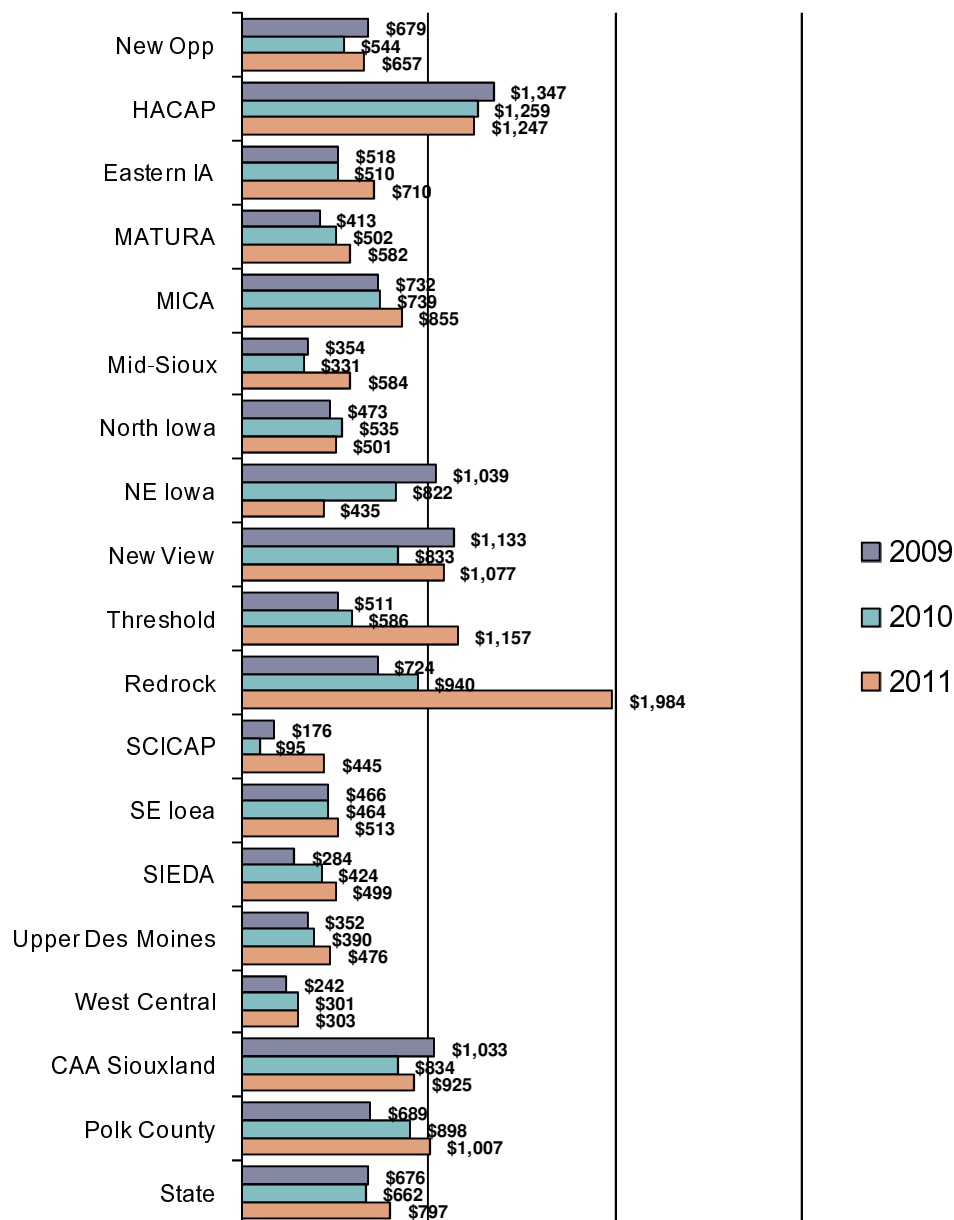


Figure 2.16a Average Program Expenditures on Floor/Crawlspace Insulation by Agency

Statewide, the average expenditure of utility funds for floor/crawlspace insulation was \$635. Redrock spent an average of \$1,500 (as noted earlier, this high value may be due to mobile home belly insulation); West Central spent the least at \$168.

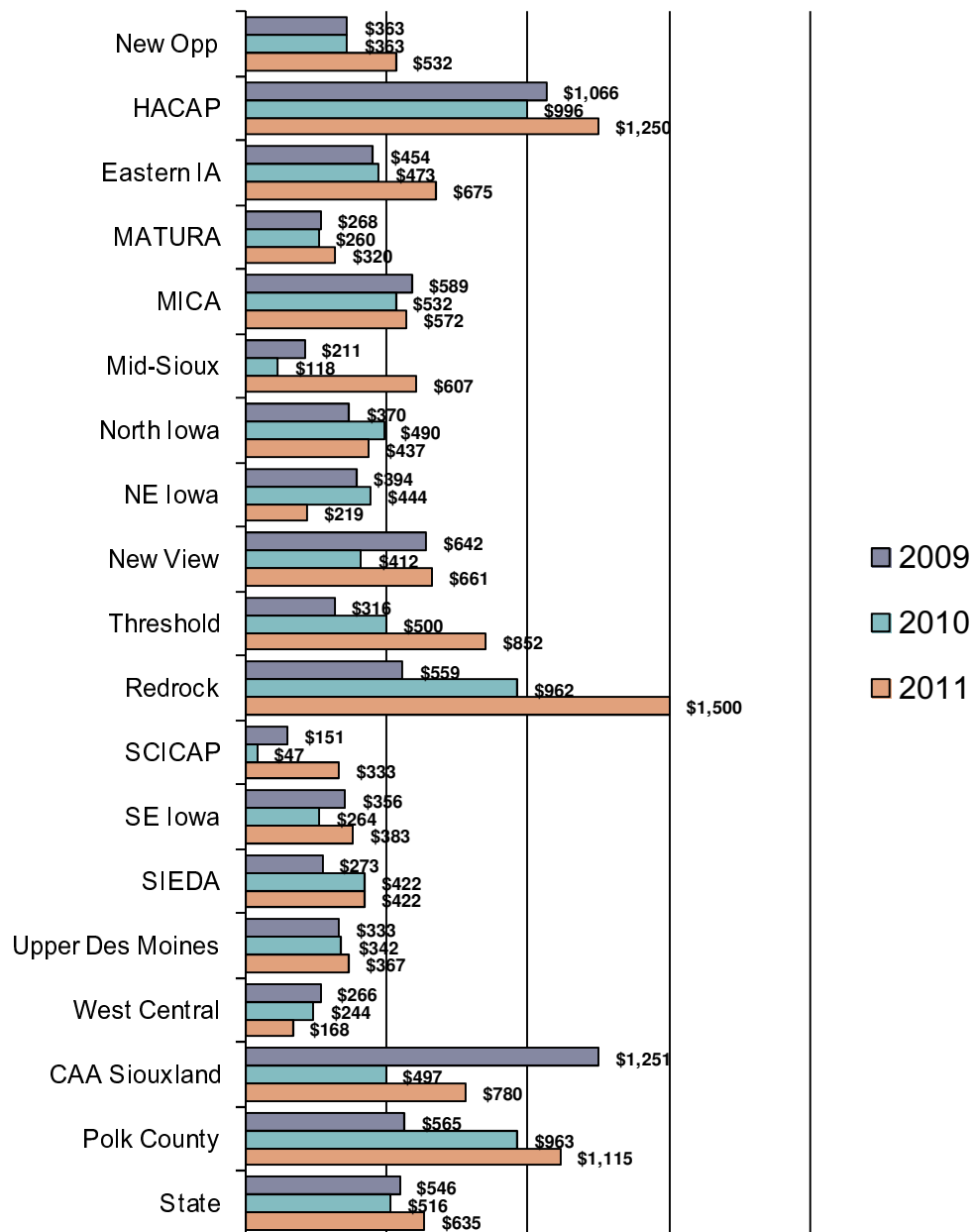


Figure 2.16b Average Utility Expenditures on Floor/Crawlspace Insulation by Agency

NON-ELECTRIC HEATING SYSTEM REPLACEMENT EXPENDITURES

Figures 2.17a and 2.17b show average expenditures for all heating non-electric heating system replacements. Statewide average heating system replacement costs were \$2,528 in 2011 (Figure 2.17a). Four agencies reported average expenditures exceeding \$3,000, including MATURA (\$3,392), Upper Des Moines (\$3,085), West Central (\$3,081), and Eastern Iowa (\$3,060). Two agencies averaged less than \$1,900 for furnace replacements, including Threshold (\$1,878), and New View (\$1,889).

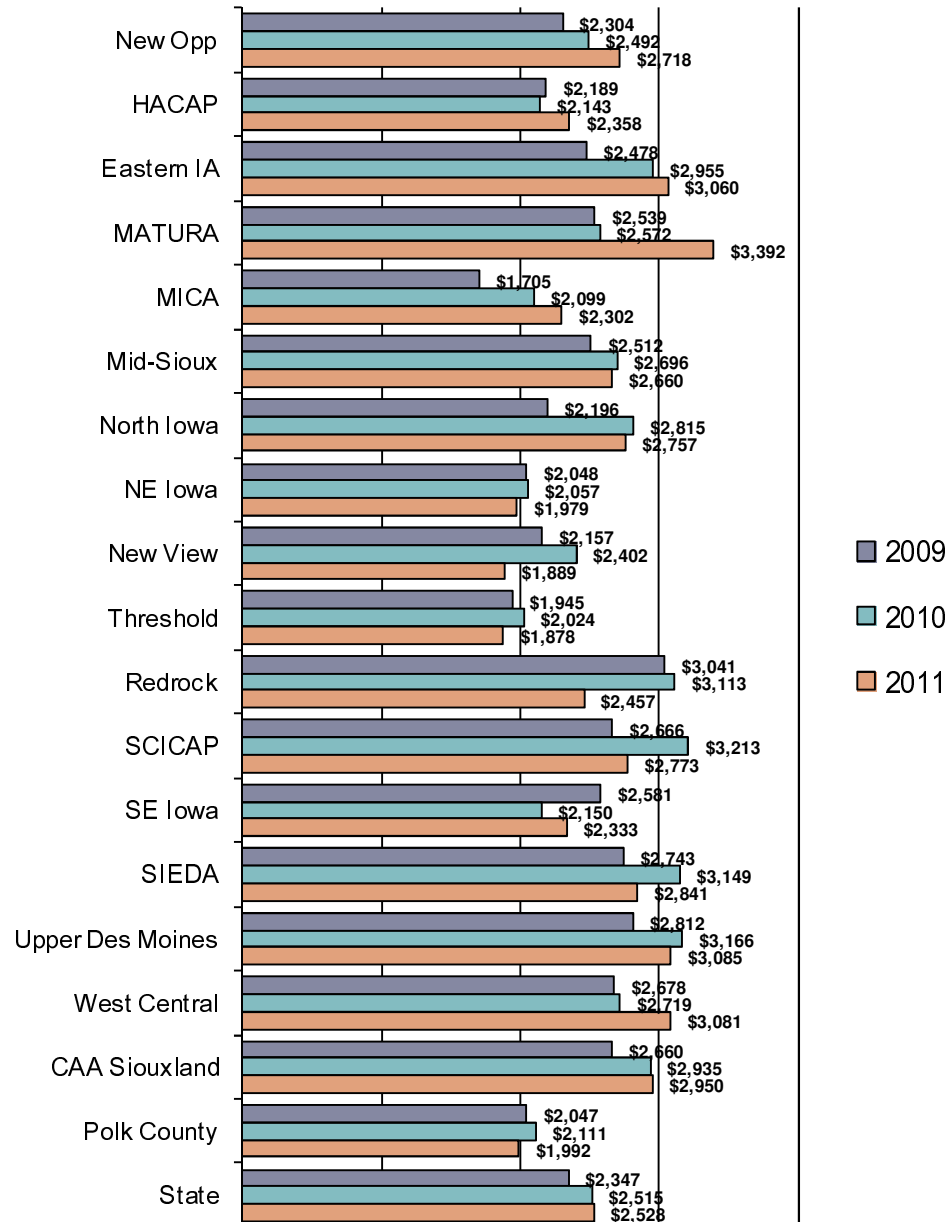


Figure 2.17a Average Program Expenditures on Heating System Replacements by Agency

Figure 2.17b shows the average utility funding for replacement heating systems of \$2,075 statewide. MATURA (\$2,430) and Upper Des Moines (\$2,407) averaged more than \$2,400 in expenditures. NE Iowa spent the least, at \$1,368 per housing unit.

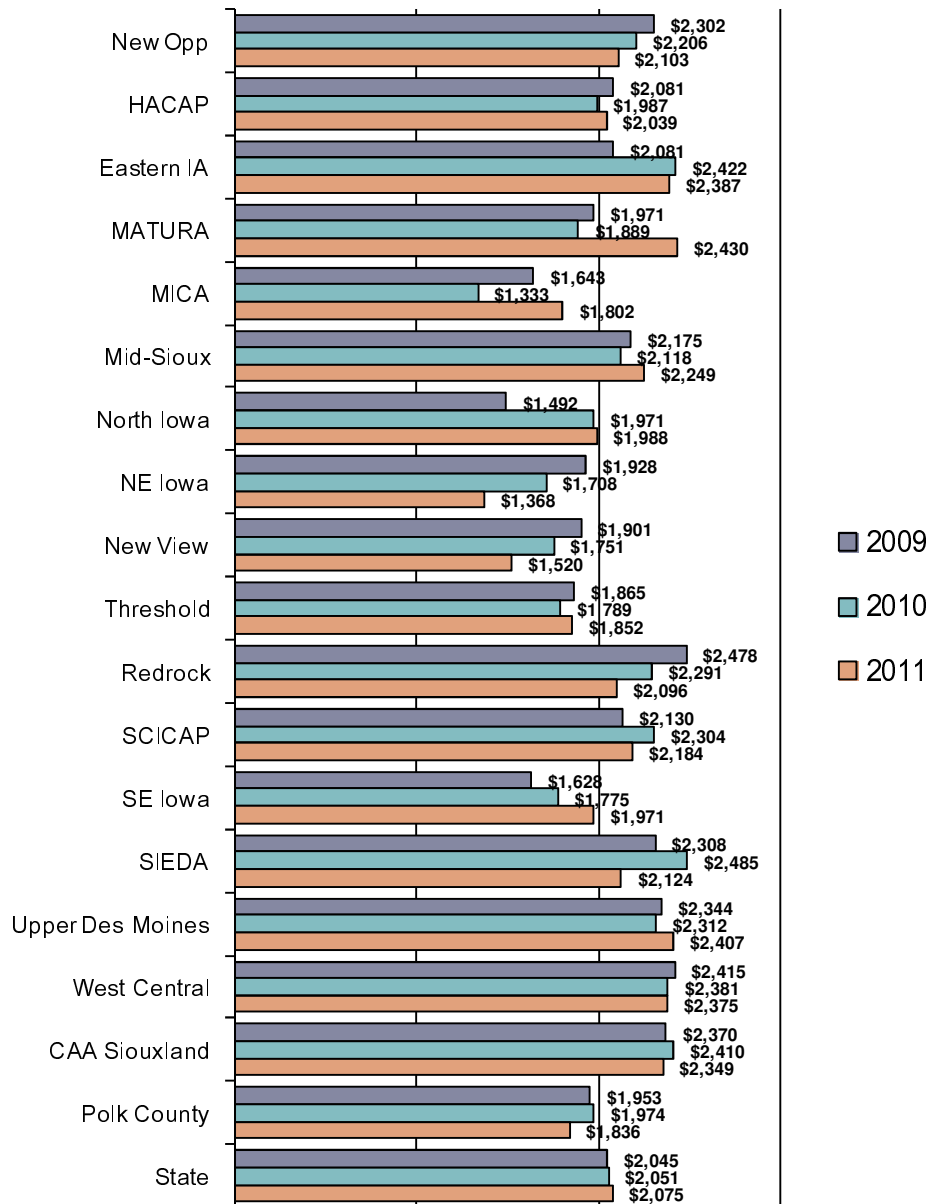


Figure 2.17b Average Utility Expenditures on Heating System Replacements by Agency

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3. NATURAL GAS 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 natural gas fuel consumption analysis provides adjustment factors to the estimated impacts which are applied to all estimated natural gas, propane, and fuel oil heating impacts.

STUDY SAMPLE AND METHODOLOGY

Weatherization jobs completed from January 1, 2011 through December 31, 2011 comprised our 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 who were natural gas customers of the SLICE utilities and who applied for energy assistance from October, 2011 through March, 2012. 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. The energy consumption tends to be lower for this group – consequently we weighted each comparison group dwelling in five usage bins so that our consumption of the weighted comparison group was similar to our treatment group.

Estimated 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 390 days prior to the beginning of the weatherization period, and up to 390 days following end of the weatherization period.

Gas consumption was weather-normalized using weather data from the same ten weather zones (Figure 3.1). Our long-term normal weather datasets are comprised of the 20-year period ending in Dec, 2009.

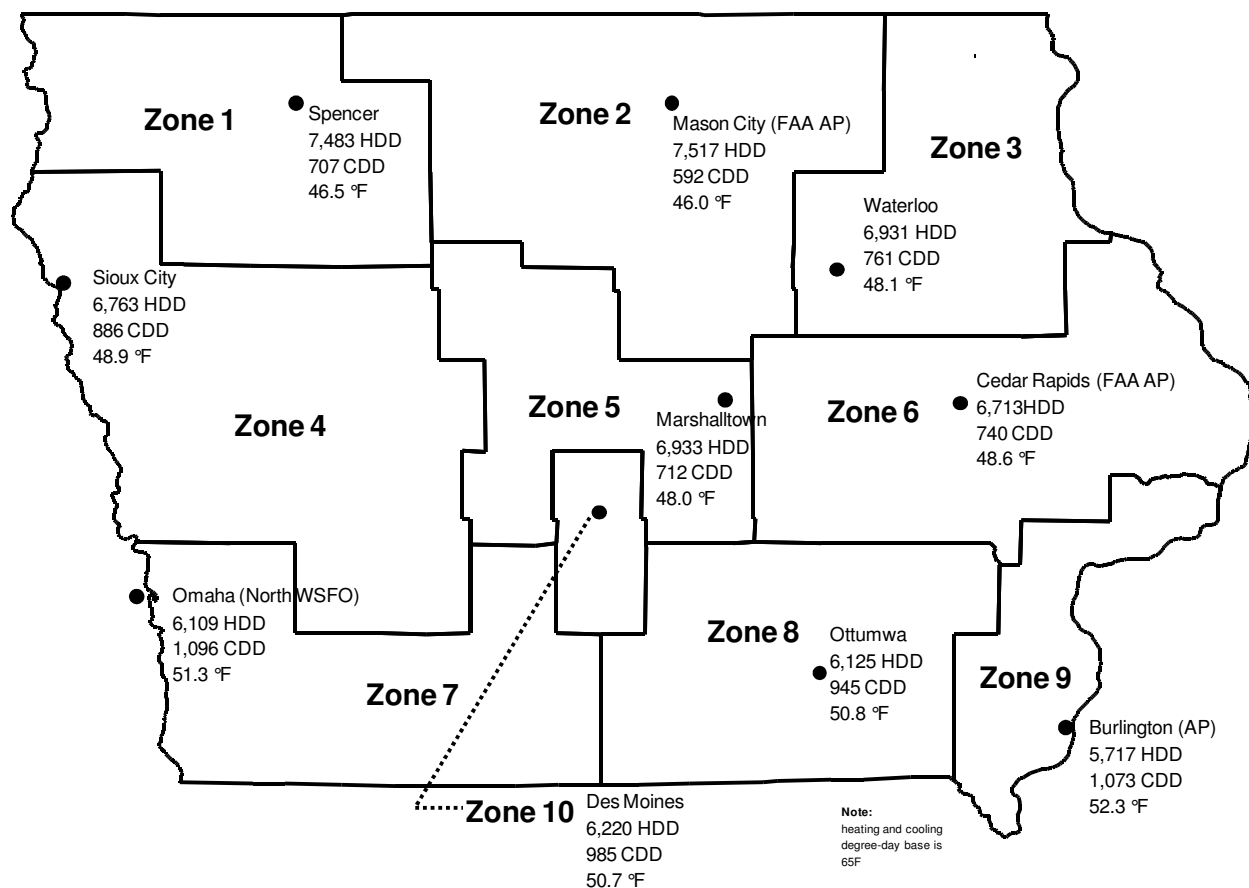


Figure 3.1. Weather zones used in the weather-normalization

MODEL SELECTION

We investigated impacts using five model specifications for each dwelling:

- Heating/Baseload
 - HB using floating point reference temperatures ranging between 40°F to 70°F
 - HBF using fixed reference temperatures of 62°F for natural gas
- Heating only (natural gas only)
 - HO using floating point reference temperatures ranging between 40°F and 70°F
 - HOF using fixed reference temperatures of 62°F
- BO Baseload only (flat), requiring 8 ½ months of data

The models passing the usability criteria (as described in the following section) were valued using the Prediction Sum of Squares (PRESS) measure to determine the model with the best fit. The PRESS

statistic was developed in 1974 as a method of cross-validating models with relatively small numbers of observations, whereby a model is fit against a subset of the data by dropping an observation, and the resulting model is used to predict the values for removed observation. This procedure is repeated for each observation in the data, and the square of the difference between the predicted value and the actual value are totaled. This total is the PRESS value.

The PRESS measurement is performed on all models: the model with the lowest PRESS value is selected.

In practice, we utilized a modified approach for models with floating reference temperatures. A strict conformance with the PRESS measure would require that the floating reference temperature be assessed for each fit of the model when an observation is removed. The full implementation would have resulted in literally hundreds of thousands of additional regressions, and time constraints prevented us from performing this level of assessment. Our alternative specification used the reference temperature as determined in the base model for fitting models in our PRESS calculations.

We have compared the results of models selected using the PRESS method with to those selected using R^2 and cvNAC screens and found that the mean normalized consumption compared similarly for most models, and in most cases the PRESS-selected model was the simpler specification. We reviewed cases with the greatest differences in the normalized consumption between the PRESS-selected models and alternative screens, and determined that the PRESS models provided a more reasonable representation of the usage in these cases.

ATTRITION ANALYSIS

We requested data for 2,931 weatherization client dwellings with gas heating and 47,903 LIHEAP client dwellings for our comparison group (also with gas heating). Our final analytic dataset included 1,797 weatherization client dwellings and 26,246 comparison dwellings, resulting in overall attrition rates of 38.7% and 45.2% for the treatment and comparison groups, respectively.

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 exceeded 0.1

- negative values for adjusted r^2

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
- The normalized annual consumption was within 10% of the results for alternate model specifications where multiple models met other criteria

ATTRITION RATES

Table 3.1 provides a breakout of the attrition rates for the state and the utilities.

Table 3.1 Sample Attrition

		State		IPL		BHC		MAE	
		Trt	Cmpr	Trt	Cmpr	Trt	Cmpr	Trt	Cmpr
Return Rate	Requested (all fuels)	2,931	47,903	962	14,714	507	9,048	1,462	24,141
Useable Histories	Pre Count	2,537	38,667	885	11,012	395	6,765	1,257	20,890
	Pre Percentage	86.6%	80.7%	92.0%	74.8%	77.9%	74.8%	86.0%	86.5%
	Post Count	2,481	41,873	820	13,942	399	6,843	1,262	21,088
	Post Percentage	84.6%	87.4%	85.2%	94.8%	78.7%	75.6%	86.3%	87.4%
	Both Pre and Pst Cnt	2,468	38,522	817	10,896	394	6,753	1,257	20,873
	Both Pre and Pst Pct	84.2%	80.4%	84.9%	74.1%	77.7%	74.6%	86.0%	86.5%
Passed Model Diagnostics	Pre Count	2,523	38,361	875	10,774	394	6,742	1,254	20,845
	Pre Percentage	86.1%	80.1%	91.0%	73.2%	77.7%	74.5%	85.8%	86.3%
	Post Count	2,469	41,609	813	13,691	394	6,835	1,262	21,083
	Post Percentage	84.2%	86.9%	84.5%	93.0%	77.7%	75.5%	86.3%	87.3%
	Both Pre and Pst Cnt	2,453	38,114	810	10,560	389	6,730	1,254	20,824
Passed Reliability Screens	Both Pre and Pst Pct	83.7%	79.6%	84.2%	71.8%	76.7%	74.4%	85.8%	86.3%
	Pre Count	2,302	33,542	749	8,743	357	5,823	1,196	18,976
	Pre Percentage	78.5%	70.0%	77.9%	59.4%	70.4%	64.4%	81.8%	78.6%
	Post Count	1,939	30,973	488	7,553	330	5,403	1,121	18,017
	Post Percentage	66.2%	64.7%	50.7%	51.3%	65.1%	59.7%	76.7%	74.6%
	Both Pre and Pst Cnt	1,797	26,246	432	5,086	300	4,707	1,065	16,453
	Both Pre and Pst Pct	61.3%	54.8%	44.9%	34.6%	59.2%	52.0%	72.8%	68.2%

The utilities returned useable data for 84.2% of the treatment client dwellings and 80.4% for the comparison group (LIHEAP) clients. The utilities were able to provide longer consumption histories than

in prior years, resulting in useable data for weatherization clients that had not participated in the LIHEAP program the prior year.

Approximately 1% of dwellings useable histories dropped due to failure of one or more of the model diagnostic criteria. Model reliability screens dropped accounted for 22 to 25% attrition. Ultimately, 61.3% of the requested treatment group clients and 54.8% of the comparison group clients had usage data suitable for the billing analysis.

Table 3.2 provides a condensed version of the attrition analysis broken out by housing type. Overall, 62.6% of single family site-built dwellings were useable, and 49.7% of mobile homes from the treatment group were passed reliability screens. Essentially no data was returned for the few multi-family dwellings weatherized by the program.

Table 3.2 Attrition by Housing Type

		State		IPL		BHC		MAE	
		Trt	Cmpr	Trt	Cmpr	Trt	Cmpr	Trt	Cmpr
Single Family Detached Framed Dwellings									
Requested		2,642	34,541	885	10,880	466	6,453	1,291	17,208
Passed Model	Both Pre and Pst Cnt	2,228	28,204	752	8,303	363	4,985	1,113	14,916
Diagnostics	Both Pre and Pst Pct	84.3%	81.7%	85.0%	76.3%	77.9%	77.3%	86.2%	86.7%
Passed Reliability	Both Pre and Pst Cnt	1,654	19,987	414	4,087	281	3,620	959	12,280
Screens	Both Pre and Pst Pct	62.6%	57.9%	46.8%	37.6%	60.3%	56.1%	74.3%	71.4%
Mobile Homes									
Requested		288	4,472	76	1,414	41	844	171	2,214
Passed Model	Both Pre and Pst Cnt	225	3,382	58	972	26	597	141	1,813
Diagnostics	Both Pre and Pst Pct	78.1%	75.6%	76.3%	68.7%	63.4%	70.7%	82.5%	81.9%
Passed Reliability	Both Pre and Pst Cnt	143	2,315	18	454	19	393	106	1,468
Screens	Both Pre and Pst Pct	49.7%	51.8%	23.7%	32.1%	46.3%	46.6%	62.0%	66.3%

OUTLIERS

An outlier screen was then applied to models with reliable pre and post usage data. Results were flagged as outliers in cases where the absolute value of the median was greater than 2.5 times the inter-quartile range for pre treatment consumption and percentage savings.

The outlier screen dropped approximately 2% of observations.

RESULTS

Our results are summarized in Table 3.3. 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 low-income energy assistance (LIHEAP) population provided the comparison group. We selected five comparison group dwellings with the nearest baseline consumption for each weatherized dwelling.

The next section of Table 3.3 (shaded) provides the net savings by agency, including average savings and percentage savings.

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

The overall adjusted savings (reported under the Net Savings column) averaged 258 therms for single family site-built dwellings. The 90% confidence interval was 9 therms, meaning that we are 90% certain that the true population mean savings falls in the range of 249 and 267 therms. The overall percentage savings was 25.5%, with a 0.6% confidence interval.

Adjusted savings for mobile homes averaged 144 therms $\pm$ 23 therms. The overall percentage savings for mobile homes was 17.2%, with a 2.2% confidence interval.

Table 3.3 Fuel Consumption Analysis Results

	Population	Treatment Group					Comparison Group											
	n	n	Baseline	90%	Savings	90%	n	Baseline	90%	Savings	90%	Net Savings (therms)	90% CI	Percent Savings (%)	90% CI	Estimated Savings	90% CI	Realization Rate (%)
	(with gas heating source)		Cons. (therms)	CI	(therms)	CI		Cons. (therms)	CI	(therms)	CI							
Single Family Detached Framed Dwelling Results																		
New Opportunities	128	48	910	54	240	33	177	857	27	-4	13	244	35	27.5%	3.8%	278	20	88.0%
HACAP	239	133	953	39	240	28	474	915	20	-8	9	248	29	24.3%	2.5%	246	14	100.5%
Eastern IA	363	191	1,009	43	283	29	656	918	21	-26	8	309	30	28.6%	2.3%	272	13	113.6%
MATURA	60	25	1,043	90	242	61	79	940	47	-14	20	256	64	24.7%	5.5%	219	25	116.7%
MICA	253	121	909	40	229	27	363	874	24	-10	9	239	28	26.2%	2.6%	276	16	86.5%
Mid-Sioux	95	37	912	69	218	48	124	873	38	0	15	217	50	22.8%	4.1%	262	21	83.1%
North Iowa	246	108	937	40	224	27	370	893	20	-10	9	233	29	24.4%	2.8%	340	16	68.6%
NE Iowa	138	74	935	62	175	37	276	884	27	-26	10	200	38	21.1%	3.8%	205	17	97.8%
New View	90	54	863	58	170	35	213	824	28	-23	11	193	37	21.0%	4.1%	186	20	104.3%
Threshold	286	158	946	40	213	26	495	878	20	-9	9	221	27	22.8%	2.4%	243	12	90.9%
Redrock	77	39	947	60	206	37	158	922	30	-9	13	215	39	23.1%	3.8%	196	18	109.5%
SCICAP	85	34	1,011	71	316	56	92	946	40	35	21	281	60	27.4%	5.7%	246	24	114.1%
SE Iowa	159	47	1,168	82	430	59	152	1,040	40	45	19	385	62	31.7%	4.0%	337	20	114.2%
SIEDA ¹	89	34	1,125	126	355	78	137	1,005	52	-11	19	366	81	31.5%	5.9%	274	24	133.6%
Upper Des Moines	227	109	955	44	260	31	424	928	22	-7	9	267	33	26.9%	2.8%	278	16	96.3%
West Central	171	80	885	47	221	36	345	879	23	-17	9	237	37	26.0%	3.4%	193	14	122.8%
CAA Siouxland	162	100	1,113	65	363	46	327	990	27	10	11	352	48	29.3%	3.2%	262	18	134.4%
Polk County	417	238	925	35	215	21	835	879	17	-17	7	233	22	24.1%	1.9%	265	33	87.7%
Overall	3,285	1,631	963	13	248	9	5,661	901	6	-10	2	258	9	25.6%	0.7%	263	6	98.4%
Mobile Homes Results (entire state)																		
Overall	377	140	799	35	124	21	531	768	17	-20	7	144	23	17.2%	2.2%	159	8	90.9%

Table 3.4 Fuel Consumption Analysis Results

	Percentage of Mobile Homes	
	Within Agency	State Overall
New Opportunities	0.0%	0.0%
HACAP	31.7%	29.4%
Eastern IA	8.8%	9.3%
MATURA	0.0%	0.0%
MICA	11.2%	8.5%
Mid-Sioux	0.0%	0.0%
North Iowa	1.2%	0.8%
NE Iowa	0.0%	0.0%
New View	25.0%	8.0%
Threshold	9.2%	7.7%
Redrock	25.2%	6.9%
SCICAP	2.3%	0.5%
SE Iowa	2.5%	1.1%
SIEDA1	7.3%	1.9%
Upper Des Moines	0.0%	0.0%
West Central	0.0%	0.0%
CAA Siouxland	5.8%	2.7%

The average savings of 144 therms for mobile homes are significantly lower than the 258 therms observed for single family site-built dwellings. HACAP weatherized the highest percentage of mobile homes, both within the agency and for the state overall – nearly 32% of all dwellings weatherized by HACAP during 2011 were mobile homes, and these accounted for 29% of all of the mobile homes weatherized in the state (Table 3.4). New View and Redrock also reported a high percentages of mobile home completions within their agency, of around 25% each.

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 3.2). The upward trending regression line indicates the population-weighted fit between NAC and savings, and demonstrates savings in relation to baseline consumption.

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. Agencies where the lower range of the confidence interval resides above the regression line indicate relatively higher savings than other agencies – MICA and West Central had higher savings relative to other agencies by this measure. The upper range of the confidence interval fell below what would be expected for three agencies, including NE Iowa, Threshold, and Redrock: this suggests relatively lower savings were attained by these agencies.

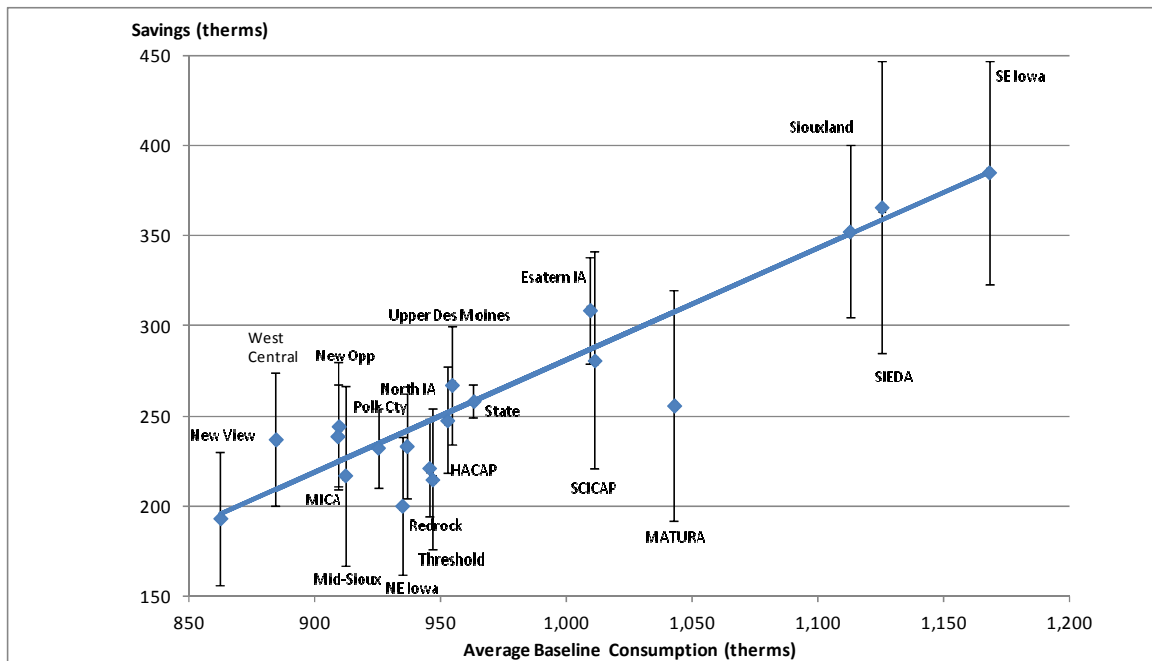


Figure 3.2 Savings in relation to the pre-weatherization normalized annual consumption (single family site-built dwellings).

Figure 3.3 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, and further indicates that percentage savings also increases.

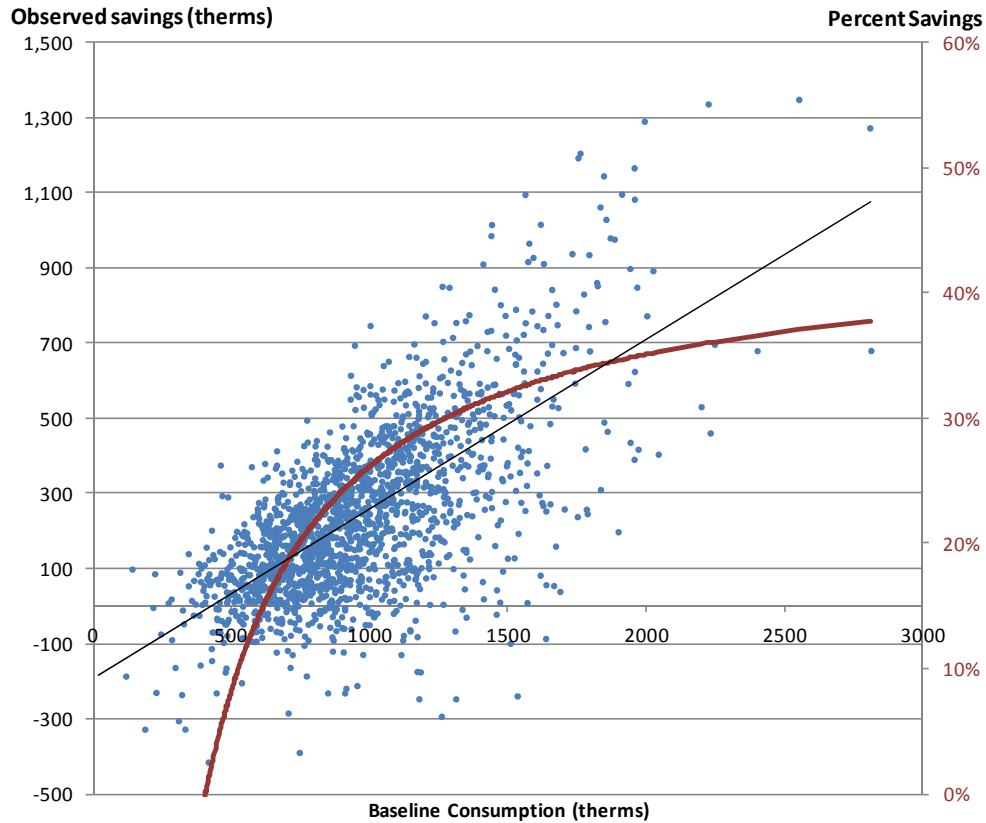


Figure 3.3. Relationship between baseline consumption, savings, and percentage savings

TRENDS IN BASELINE CONSUMPTION AND ENERGY SAVINGS

Figure 3.4 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 single-family dwelling in the CY 1998 program. Baseline consumption has declined by 31% since then, to 962 in CY 2011. Net savings has declined over the same period, however percentage savings has remained in the 23% to 26% range (25.7% in the 2011 program).

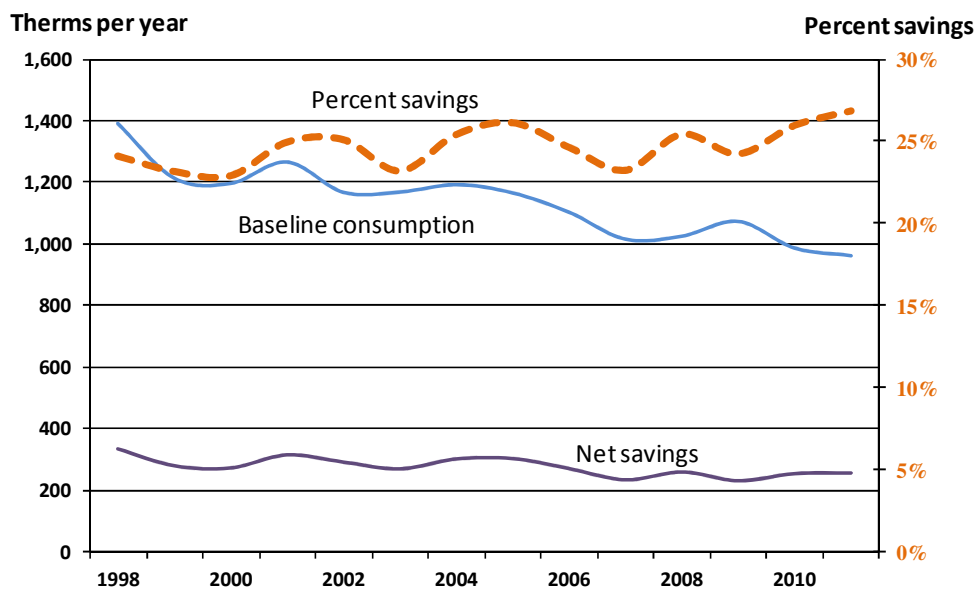


Figure 3.4 Annual Baseline Consumption, Savings, and Percentage Savings

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4. 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.

A separate table providing a break out the impacts and expenditures for ARRA-funded measures was added to this report.

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Interstate Power and Light Co.

Calendar Year 2011

Total Fuel and Demand Impacts For All Customer Households and All Funding Sources including State and Other Utilities

	Number of Households with Impacts			Count of Households with Electricity Impacts by End-Use		Estimated First-Year Savings Electricity					Average per Treated Household									
											Gas							Gas		
Measure	Total	Electric	Gas	Cooling	Heating	Summer kW	kWh	Winter kW	kWh	Annual kWh	Pk-Day therms	Annual therms	Summer kW	kWh	Winter kW	kWh	Annual kWh	Pk-Day therms	Annual therms	
OVERALL	1,932	1,673	1,038	1,671	1,495	507.8		326.2		1,727,101	2,974	279,866	0.304		0.218		1,032	2.865	270	
Shell & Htg. Sys.	1,822	1,482	1,036	1,459	106	405.8	489,355	175.5	267,206	756,561	2,862	259,596	0.278	335	1.656	2,521	510	2.762	251	
Wall Insul.	1,161	941	723	927	47	160.82	193,954	59.41	91,061	285,015	768	69,444	0.173	209	1.264	1,937	303	1.062	96	
Open Blown Ceiling Insul.	1,431	1,167	854	1,149	76	145.30	175,240	48.79	74,452	249,692	425	38,734	0.126	153	0.642	980	214	0.498	45	
Cavity Fill Insul.	351	235	234	231	12	15.88	19,152	10.31	15,776	34,928	152	13,986	0.069	83	0.859	1,315	149	0.648	60	
Sloped Attic Insul.	461	363	291	359	18	25.49	30,736	10.23	15,690	46,426	129	11,738	0.071	86	0.568	872	128	0.443	40	
Kneewall Insul.	371	277	243	271	16	10.02	12,086	3.25	4,994	17,080	53	4,833	0.037	45	0.203	312	62	0.217	20	
Infil. Reduction	1,803	1,472	1,024	1,450	101	27.66	33,357	20.39	30,516	63,873	204	18,459	0.019	23	0.202	302	43	0.199	18	
Found./Crawl. Insul.	619	282	472	264	42	20.59	24,829	16.80	25,250	50,079	110	9,925	0.078	94	0.400	601	178	0.232	21	
Bandjoist Insul.	677	56	621	-	56	0.00	0	5.53	8,305	8,305	47	4,227	-	-	0.099	148	148	0.075	7	
Exhaust Ventilation	236	30	205	-	30	0.00	0	-4.00	(6,101)	(6,101)	(13)	(1,207)	-	-	-0.133	(203)	(203)	-0.064	-6	
Condensing Htg Sys Repl	605	0	604	-	0	0.00	0	0.00	0	0	920	83,210	-	-	-	-	-	1.524	138	
Non-Cond Htg Sys Repl	75	0	75	-	0	0.00	0	0.00	0	0	68	6,247	-	-	-	-	-	0.904	83	
Electric Htg Sys Repl	43	43	0	-	43	0.00	0	4.62	6,979	6,979	0	0	-	-	0.107	162	162	-	-	
Heat Pump Repl	2	2	0	-	2	0.00	0	0.18	284	284	0	0	-	-	0.092	142	142	-	-	
Other Htg Sys Repl	0	0	0	-	0	0.00	0	0.00	0	0	0	0	-	-	-	-	-	-	-	
				Number of Measures by Fuel Type																
	Total	Electric	Gas	Total	Electric	Gas	Summer kW	Winter kW		Annual kWh	Pk-Day therms	Annual therms	Summer kW		Winter kW		Annual kWh	Pk-Day therms	Annual therms	
Water Heating	1,036	329	707	0	0	0	0.0	1.0		57,759	111.8	20,270	0.000		0.003		176	0.158	29	
Temp. Reduct.	7	2	5				0.00	0.00		305	0.1	41	0.000		0.000		153	0.024	8	
WH Wrap	1	0	1				0.00	0.00		0	0.1	25	-		-		-	0.071	25	
Pipe Insul.	768	258	510				0.00	0.03		14,629	4.9	1,693	0.000		0.000		57	0.010	3	
LF Showerhead	287	98	189	0	0	0	0.00	0.52		22,706	4.9	1,496	0.000		0.005		232	0.026	8	
Faucet Aerator	471	137	334	0	0	0	0.00	0.24		10,484	2.8	849	0.000		0.002		77	0.008	3	
Std-Eff Wtr Htr Repl.	165	55	110	0	0	0	0.00	0.05		2,151	17.0	2,778	0.000		0.001		39	0.155	25	
Hi-Eff Wtr Htr Repl.	362	44	318	0	0	0	0.00	0.18		7,485	82.1	13,389	0.000		0.004		170	0.258	42	
Lighting	1,392	1,392		0	0		59.4	109.8		565,992	-	-	0.043		0.079		407	-	-	
CFL (5W)	5	5		0	0		0.03	0.05		270	-	-	0.006		0.010		54	-	-	
CFL (7W)	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-	
CFL (9W)	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-	
CFL (11W)	136	136		0	0		1.70	3.15		16,233	-	-	0.013		0.023		119	-	-	
CFL (14W)	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-	
CFL (15W)	998	998		0	0		31.59	58.36		300,846	-	-	0.032		0.058		301	-	-	
CFL (18W)	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-	
CFL (20W)	163	163		0	0		4.17	7.70		39,688	-	-	0.026		0.047		243	-	-	
CFL (23W)	356	356		0	0		12.67	23.42		120,705	-	-	0.036		0.066		339	-	-	
CFL (25W)	151	151		0	0		9.25	17.08		88,048	-	-	0.061		0.113		583	-	-	
CFL (30W)	2	2		0	0		0.02	0.04		202	-	-	0.011		0.020		101	-	-	
CFL, unknown	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-	
Refrigerator/Freezer	438	438		0	0		42.66	39.88		346,789	-	-	0.097		0.091		792	-	-	
Refrigerator Removal	3	3		0	0		0.25	0.23		2,032	-	-	0.083		0.078		677	-	-	
Refrigerator Exchange	376	376		0	0		33.00	30.85		268,281	-	-	0.088		0.082		714	-	-	
Freezer Removal	1	1		0	0		0.09	0.08		721	-	-	0.089		0.083		721	-	-	
Freezer Exchange	104	104		0	0		9.32	8.71		75,754	-	-	0.090		0.084		728	-	-	

Black Hills Energy

Calendar Year 2011

Total Fuel and Demand Impacts For All Customer Households and All Funding Sources including State and Other Utilities

Measure	Number of Households with Impacts			Count of Households with Electricity Impacts by End-Use		Estimated First-Year Savings Electricity					Average per Treated Household								
	Total	Electric	Gas	Cooling	Heating	Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Pk-Day therms	Gas Annual therms	Summer kW	Summer kWh	Winter kW	Winter kWh	Annual kWh	Pk-Day therms	Gas Annual therms
OVERALL	540	0	539	0	0	0.0		0.0		0	1,146	110,742	-		-		-	2.127	205
Shell & Htg. Sys.	539	0	538	0	0	0.0	0	0.0	0	0	1,095	101,416	-	-	-	-	-	2.036	189
Wall Insul.	300	0	300	0	0	0.00	0	0.00	0	0	265	24,636	-	-	-	-	-	0.884	82
Open Blown Ceiling Insul.	429	0	428	0	0	0.00	0	0.00	0	0	157	14,575	-	-	-	-	-	0.366	34
Cavity Fill Insul.	129	0	128	0	0	0.00	0	0.00	0	0	75	7,032	-	-	-	-	-	0.585	55
Sloped Attic Insul.	132	0	132	0	0	0.00	0	0.00	0	0	55	5,125	-	-	-	-	-	0.420	39
Kneewall Insul.	93	0	93	0	0	0.00	0	0.00	0	0	13	1,227	-	-	-	-	-	0.143	13
Infil. Reduction	522	0	521	0	0	0.00	0	0.00	0	0	93	8,594	-	-	-	-	-	0.179	16
Found./Crawl. Insul.	205	0	205	0	0	0.00	0	0.00	0	0	41	3,772	-	-	-	-	-	0.200	18
Bandjoist Insul.	218	0	217	-	0	0.00	0	0.00	0	0	12	1,122	-	-	-	-	-	0.056	5
Exhaust Ventilation	147	0	147	-	0	0.00	0	0.00	0	0	(9)	(873)	-	-	-	-	-	-0.064	-6
Condensing Htg Sys Repl	264	0	264	-	0	0.00	0	0.00	0	0	335	30,861	-	-	-	-	-	1.268	117
Non-Cond Htg Sys Repl	60	0	60	-	0	0.00	0	0.00	0	0	58	5,346	-	-	-	-	-	0.965	89
Electric Htg Sys Repl	0	0	0	-	0	0.00	0	0.00	0	0	0	0	-	-	-	-	-	-	-
Heat Pump Repl	0	0	0	-	0	0.00	0	0.00	0	0	0	0	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	-	0	0.00	0	0.00	0	0	0	0	-	-	-	-	-	-	-
	Total	Electric	Gas	Total	Electric	Gas	Summer kW	Winter kW		Annual kWh	Pk-Day therms	Annual therms	Summer kW		Winter kW		Annual kWh	Pk-Day therms	Annual therms
Water Heating	362	0	362	0	0	0	0.0	0.0		0	50.9	9,326	-		-		-	0.141	26
Temp. Reduct.	7	0	7				0.00	0.00		0	0.2	58	-		-		-	0.024	8
WH Wrap	0	0	0				0.00	0.00		0	0.0	0	-		-		-	-	-
Pipe Insul.	290	0	290				0.00	0.00		0	2.8	961	-		-		-	0.010	3
LF Showerhead	82	0	82	0	0	0	0.00	0.00		0	2.2	689	-		-		-	0.027	8
Faucet Aerator	122	0	122	0	0	0	0.00	0.00		0	1.1	350	-		-		-	0.009	3
Std-Eff Wtr Htr Repl.	77	0	77	0	0	0	0.00	0.00		0	11.9	1,948	-		-		-	0.155	25
Hi-Eff Wtr Htr Repl.	140	0	140	0	0	0	0.00	0.00		0	32.6	5,319	-		-		-	0.233	38
Lighting	0	0		0	0		0.0	0.0		0	-	-	-		-		-	-	-
CFL (5W)	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-
CFL (7W)	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-
CFL (9W)	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-
CFL (11W)	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-
CFL (14W)	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-
CFL (15W)	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-
CFL (18W)	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-
CFL (20W)	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-
CFL (23W)	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-
CFL (25W)	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-
CFL (30W)	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-
CFL, unknown	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-
Refrigerator/Freezer	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-
Refrigerator Removal	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-
Refrigerator Exchange	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-
Freezer Removal	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-
Freezer Exchange	0	0		0	0		0.00	0.00		0	-	-	-		-		-	-	-

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5. 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.

Costs, Fuel, and Demand Impacts for All Measures

Measure	Number of Households with Impacts					Count of Households with Electricity Impacts by Season					Estimated First-Year Savings					Average Estimated First Year Measure Cost and Savings											
											Electricity					Average per Treated Household											
	Total	Electric	Gas	Propane	Fuel Oil	Cooling	Heating	Spending on Materials & Labor (\$)	Summer kWh	kWh	Winter kWh	kWh	Annual kWh	Pk-Day therms	Gas Annual therms	Propane gallons	Fuel Oil gallons	Spending on Materials & Labor (\$)	Summer kWh	kWh	Winter kWh	Annual kWh	Pk-Day therms	Gas Annual therms	Propane gallons	Fuel Oil gallons	
OVERALL (Energy Mea	210	210	129	65	5	210	210	1,095,899	80.7		44.6		247,914	335	31,441	14,673	948	5218.57	0.384		0.212		1,181	2,600	244	226	190
Shell & Htg. Sys.	210	194	129	64	5	194	12	967,961	66.7	80,432	23.0	35,104	115,536	325	29,646	14,226	948	4609.34	0.344	415	1.914	2,925	596	2,519	230	222	190
Insul.	143	132	94	40	4	132	5	157,754	25.34	30,562	5.01	7,655	38,217	70	6,411	2,538	228	1103.17	0.192	232	1.001	1,531	290	0.748	68	63	57
Open Blown Ceiling Insul.	192	177	116	62	5	177	9	128,600	23.98	28,918	6.51	9,958	38,876	28	2,561	2,003	144	669.79	0.135	163	0.724	1,106	220	0.242	22	32	29
Slivity Fill Insul.	33	30	16	15	0	30	2	18,385	2.40	2,897	1.44	2,199	5,096	4	405	740	0	557.13	0.080	97	0.719	1,099	170	0.278	25	49	-
Sloped Attic Insul.	62	56	39	23	3	56	2	27,918	5.84	7,038	3.53	5,399	12,437	16	1,467	1,316	106	450.23	0.104	126	1.177	1,800	222	0.487	44	57	35
Kneewall Insul.	67	57	45	16	2	57	4	11,277	1.47	1,774	0.30	459	2,233	5	422	270	15	168.31	0.026	31	0.075	115	39	0.103	9	17	7
Infil. Reduction	210	194	129	64	5	194	12	107,696	4.16	5,013	2.54	3,880	8,894	28	2,576	791	47	512.84	0.021	26	0.212	323	46	0.219	20	12	9
Found./Crawl. Insul.	111	47	71	29	4	42	7	72,960	3.51	4,229	3.21	4,909	9,138	21	1,918	597	33	657.30	0.083	101	0.459	701	194	0.296	27	21	8
Bandjoist Insul.	130	6	74	46	4	-	6	8,978	0.00	0	0.47	721	721	3	272	158	11	69.06	-	-	0.079	120	120	0.040	4	3	3
Exhaust Ventilation	48	4	27	16	1	-	4	32,084	0.00	0	-0.53	(813)	(813)	(2)	(140)	(91)	(4)	668.41	-	-	-0.133	(203)	(203)	-0.057	-5	-6	-4
Condensing Htg Sys Repl	142	0	103	35	4	-	-	388,225	0.00	0	0.00	0	0	148	13,546	5,905	368	2733.38	-	-	-	-	-	1.441	132	169	92
Non-Cond Htg Sys Repl	1	0	1	0	0	-	-	3,570	0.00	0	0.00	0	0	2	208	0	0	3570.00	-	-	-	-	-	2.281	208	-	-
Electric Htg Sys Repl	5	5	0	0	0	-	5	10,515	0.00	0	0.00	0	738	0	0	0	0	2103.05	-	-	0.097	148	148	-	-	-	-
Heat Pump Repl	0	0	0	0	0	-	0	0	0.00	0	0.00	0	0	0	0	0	0	0.00	-	-	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	-	0	0	0.00	0	0.00	0	0	0	0	0	0	0.00	-	-	-	-	-	-	-	-	-
	Total	Electric	Gas	Propane	Fuel Oil	Total	Electric	Gas																			

Hawkeye Area Community Action Program Calendar Year 2011 Costs, Fuel, and Demand Impacts for All Measures

	Number of Households with Impacts					Count of Households with Electricity Impacts by Season					Estimated First-Year Savings										Average Estimated First Year Measure Cost and Savings									
											Electricity					Gas					Average per Treated Household									
Measure	Total	Electric	Gas	Propane	Fuel Oil	Cooling	Heating				Spending on Materials & Labor (\$)	Summer kW	kWh	Winter kW	kWh	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	Spending on Materials & Labor (\$)	Summer kW	kWh	Winter kW	kWh	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons
OVERALL (Energy Mea)	420	404	352	54	5	404	350				2,627,871	89.2		51.9		317,484	799	75,806	14,587	946	6256.83	0.221		0.148		786	2,271	215	270	189
Shell & Htg. Sys.	420	343	350	54	5	343	11				2,223,571	65.8	79,377	18.7	28,833	108,210	768	70,621	14,587	946	5294.22	0.192	231	1,702	2,621	315	2,195	202	270	189
Wall Insul.	221	173	177	33	5	173	6				568,300	27.15	32,742	6.75	10,391	43,132	176	16,222	3,069	365	2571.49	0.157	189	1,124	1,732	249	0.997	92	93	73
Open Blown Ceiling Insul.	243	189	194	38	3	189	8				244,556	21.87	26,375	3.61	5,565	31,940	103	9,473	2,437	116	1006.40	0.116	140	1,452	696	169	0.311	49	64	39
Cavity Fill Insul.	52	29	39	11	0	28	2				45,887	1.86	2,244	0.97	4,582	6,826	23	2,089	754	0	882.44	0.066	80	1,487	2,291	235	0.583	54	69	-
Sloped Attic Insul.	75	60	59	12	2	60	2				23,456	3.78	4,557	1.23	1,898	6,455	24	2,190	607	57	502.09	0.063	76	0.616	949	108	0.404	37	51	28
Kneewall Insul.	52	42	43	6	1	42	2				37,657	1.70	2,053	0.35	539	2,592	11	967	86	21	451.07	0.041	49	0.175	270	62	0.245	22	14	21
Infil. Reduction	419	343	349	54	5	343	11				253,798	6.30	7,592	2.32	3,578	11,170	73	6,688	1,322	35	605.72	0.018	22	0.211	325	33	0.208	19	24	7
Found/Crawl. Insul.	208	51	176	26	1	47	5				259,307	3.16	3,814	0.83	1,285	5,098	70	6,434	901	8	1246.67	0.067	81	0.167	257	100	0.398	37	35	8
Bandjoist Insul.	213	8	164	37	4	-	-				37,460	0.00	0	0.46	701	701	8	719	195	20	175.87	-	-	0.057	88	88	0.048	4	5	5
Exhaust Ventilation	171	5	142	23	1	-	5				104,770	0.00	0.66	(1,017)	(1,017)	(9)	(9)	(330)	(150)	(4)	613.99	-	-	-0.132	(203)	(203)	-0.064	6	-7	-4
Condensing Htg Sys Repl	223	188	32	3	0	-	-				520,433	0.00	0	0.00	0	0	253	23,238	5,182	328	2333.78	-	-	-	-	1,345	124	162	109	
Non-Cond Htg Sys Repl	44	0	42	2	0	-	-				101,724	0.00	0	0.00	0	0	37	3,431	183	0	2311.91	-	-	-	-	0.889	82	91	-	
Electric Htg Sys Repl	8	8	0	0	0	-	8				16,223	0.00	0	0.85	1,311	1,311	0	0	0	0	3277.88	-	-	0.106	164	164	-	-	-	-
Heat Pump Repl	0	0	0	0	0	-	0				0	0.00	0	0.00	0	0	0	0	0	0	0.00	-	-	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	-	0				0	0.00	0	0.00	0	0	0	0	0	0	0.00	-	-</							

Costs for Measures Without Energy Impacts Installed in 420 Total Households with Spending and/or Energy Impacts:

Total		2,044,294	4867.37
Unspecified Insul.	389	207,302	532.91
Duct Sealing	188	54,655	290.72
Duct Insulation	63	10,787	171.22
Damming Material	195	14,055	72.08
Htg. Sys. Tune & Clean	125	10,979	87.83
Htg. Sys./WH Other	72	25,400	352.77
Air Conditioning Work	0	0	0.00
Water Heater Repair	17	3,237	190.41
Refrigerator Coil Clean	0	0	0.00
Waterbed Mattress Pad	0	0	0.00
Programmable Total	0	0	0.00
Unspecified Utility Meas.	0	0	0.00
CO Detector	355	29,988	84.47
Smoke Detector	207	13,202	63.78
Fuses	7	981	140.19
Htg Sys Safety Check	0	0	0.00
Htg Sys Ventilation	0	0	0.00
Water Heater Ventilation	10	1,735	173.50
Bathroom Ventilation	47	7,788	165.69
Other Exhaust Ventilation	216	28,723	132.98
Health/Safety Repairs	0	0	0.00
Health/Safety Other	138	85,068	616.43
Consumables	291	12,717	43.70
General Repairs	334	213,057	637.80
Meter Refrig (no action)	0	0	0.00
Meter Freezer (no action)	0	0	0.00
Support	405	1,219,199	3010.37
Transportation Allowance	159	28,806	181.17
Landlord Contr Misc	0	0	0.00
Landlord Contr Furnace	0	0	0.00
Landlord Contr DHW	0	0	0.00
Client Contr (Any)	0	0	0.00
Lead Safe Work	234	76,371	326.37
Unspecified	4	246	61.53

Total Reported Materials, Labor, and Support Costs:

Grand Total of Expenditures:

Costs, Fuel, and Demand Impacts for All Measures

	Number of Households with Impacts					Count of Households with Electricity Impacts by Season					Estimated First-Year Savings										Average Estimated First Year Measure Cost and Savings										
											Spending on Materials & Labor (\$)		Electricity		Gas		Propane		Fuel Oil		Spending on Materials & Labor (\$)		Electricity		Gas		Propane		Fuel Oil		
Measure	Total	Electric	Gas	Propane	Fuel Oil	Cooling	Heating				Summer kW	kWh	Winter kW	kWh	Annual kWh	Pk-Day therms	Annual therms	gallons	gallons		Summer kW	kWh	Winter kW	kWh	Annual kWh	Pk-Day therms	Annual therms	gallons	gallons		
OVERALL (Energy Mea	87	87	59	16	1	87	77				481,917	35.8	22.1		105,790	172	15,101	4,355	422		5539.27	0.411	0.287		1,216	2,913	256	272	422		
Shell & Htg. Sys.	86	79	59	16	1	79	10				435,141	30.7	37,004	14.7	21,295	58,299	169	14,570	4,152	422		5059.77	0.388	0.287	1,475	2,129	738	2,866	247	259	422
Insul.	51	45	38	10	1	45	2				73,402	10.75	12,964	1.35	1,943	14,907	38	3,290	674	83		1439.26	0.239	0.288	0.673	972	331	1,005	87	67	83
Open Blown Ceiling Insul.	71	66	51	13	1	66	6				59,451	13,121	6,85	10,041	23,163	28	2,447	985	80			837.33	0.165	0.199	1,159	1,674	351	0,557	48	76	80
Cavity Fill Insul.	19	15	17	1	1	15	0				10,597	2,012	0.00	0	0	2,012	11	961	50	24		557.74	0.111	0.134	-	134	334	0,656	57	50	24
Sloped Attic Insul.	25	23	20	3	1	23	1				9,666	2.44	2,939	0.84	1,219	4,158	10	894	95	15		386.65	0.106	0.128	0.845	1,219	181	0,519	45	32	15
Kneewall Insul.	28	22	19	6	1	22	2				4,103	0.58	704	0.31	443	1,147	2	202	66	31		146.54	0.027	0.032	0.153	221	52	0,123	11	11	31
Infilt. Reduction	85	78	58	16	1	78	10				51,657	1.96	2,364	1.81	2,620	4,984	11	944	336	13		607.73	0.025	0.30	0.181	262	64	0,189	16	21	13
Found/Crawl. Insul.	44	25	28	9	1	23	6				25,605	2.41	2,901	3.07	4,427	7,328	7	597	180	17		581.94	0.105	0.126	0.511	738	293	0,247	21	20	17
Bandjoist Insul.	54	3	38	12	1	-	3				6,327	0.00	0	0.44	631	631	2	194	79	5		117.16	-	-	0.146	210	210	0,059	5	7	5
Exhaust Ventilation	27	4	17	6	0	-	4				14,551	0.00	0	0.56	(813)	(813)	(1)	(122)	(47)	0		538.83	-	-	-0.141	(203)	(203)	-0,083	-7	-8	-
Condensing Htg Sys Repl	28	0	23	4	1	-	-				98,521	0.00	0	0.00	0	0	0	3,515	933	153		3518.61	-	-	-	-	1,774	153	233	153	-
Non-Cond Htg Sys Repl	19	0	12	7	0	-	-				68,205	0.00	0	0.00	0	0	19	1,648	798	0		3589.74	-	-	-	-	1,594	137	114	-	-
Electric Htg Sys Repl	6	6	0	0	0	-	6				13,055	0.00	0	0.54	783	783	0	0	0	0		2175.81	-	-	0.090	130	130	-	-	-	-
Heat Pump Repl	0	0	0	0	0	-	0				0	0.00	0	0.00	0	0	0	0	0	0		0.00	-	-	-	-	-	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	-	0				0	0.00	0	0.00	0	0	0</														

Costs for Measures Without Energy Impacts Installed in 88 Total Households with Spending and/or Energy Impacts:

Total		422,835	4804.94
Unspecified Insul.	81	22,455	277.22
Duct Sealing	0	0	0.00
Duct Insulation	0	0	0.00
Damming Material	33	666	20.18
Htg. Sys. Tune & Clean	16	4,575	285.94
Htg. Sys./WH Other	56	16,116	287.78
Air Conditioning Work	0	0	0.00
Water Heater Repair	0	0	0.00
Refrigerator Coil Clean	0	0	0.00
Waterbed Mattress Pad	0	0	0.00
Programmable Total	0	0	0.00
Unspecified Utility Meas.	0	0	0.00
CO Detector	38	920	24.21
Smoke Detector	30	790	26.35
Fuses	0	0	0.00
Htg Sys Safety Check	0	0	0.00
Htg Sys Ventilation	19	7,775	409.21
Water Heater Ventilation	32	11,885	371.41
Bathroom Ventilation	20	4,711	235.53
Other Exhaust Ventilation	42	6,361	151.46
Health/Safety Repairs	0	0	0.00
Health/Safety Other	1	123	122.55
Consumables	0	0	0.00
General Repairs	84	69,103	822.65
Meter Refrig (no action)	1	0	0.00
Meter Freezer (no action)	0	0	0.00
Support	87	243,279	2796.31
Transportation Allowance	0	0	0.00
Landlord Contr Misc	0	0	0.00
Landlord Contr Furnace	0	0	0.00
Landlord Contr DHW	0	0	0.00
Client Contr (Any)	0	0	0.00
Lead Safe Work	69	34,077	493.87
Unspecified	0	0	0.00

Total Reported Materials, Labor, and Support Costs:

Grand Total of Expenditures:

Costs, Fuel, and Demand Impacts for All Measures

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Total Reported Materials, Labor, and Support Costs:

Grand Total of Expenditures:

Costs, Fuel, and Demand Impacts for All Measures

	Number of Households with Impacts					Count of Households with Electricity Impacts by Season					Estimated First-Year Savings										Average Estimated First Year Measure Cost and Savings											
											Spending on Materials & Labor (\$)		Electricity		Gas		Propane		Fuel Oil		Spending on Materials & Labor (\$)		Electricity		Gas		Propane		Fuel Oil			
Measure	Total	Electric	Gas	Propane	Fuel Oil	Cooling	Heating					Summer kW	Winter kWh	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons			Summer kW	Winter kWh	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons					
OVERALL (Energy Mea	314	313	230	57	2	313	308					2,286,208	99.3	78.5	358,032	604	60,781	18,276	238		7280.92	0.317	0.255	1,144	2.625	264	321	119				
Shell & Htg. Sys.	314	285	227	57	2	283	28					2,042,316	80.2	96.712	51.0	83.181	179,894	578	56,263	17,835	238		6504.19	0.283	342	1,821	2,971	631	2,546	248	313	119
Wall Insul.	230	207	175	40	1	206	14					520,936	32.43	39,107	19.56	31,912	71,019	167	16,298	4,041	68		2284.94	0.157	190	1,397	2,279	343	0.957	93	101	68
Open Blown Ceiling Insul.	281	265	209	53	2	265	04					216,529	21.62	25,440	13.04	21,265	46,705	69	6,678	2,595	15		744.08	0.080	96	483	788	176	0.328	32	49	8
Cavity Fill Insul.	195	167	141	38	1	166	15					227,947	10.78	13,006	9.03	14,736	27,742	73	7,141	2,333	115		1168.96	0.065	78	602	982	166	0.520	51	61	115
Sloped Attic Insul.	143	124	105	26	0	123	12					74,131	7.61	9,175	6.12	9,979	19,155	50	4,840	1,318	0		518.40	0.062	75	0.510	832	154	0.474	46	51	-
Kneewall Insul.	62	55	47	13	0	54	2					24,335	1.53	1,847	0.72	1,181	3,028	11	1,034	456	0		392.50	0.028	34	0.362	590	55	0.226	22	35	-
Infil. Reduction	310	281	225	57	2	280	26					139,029	5.13	6,190	2.77	4,512	10,702	27	2,664	796	31		448.48	0.018	22	0.106	174	38	0.122	12	14	15
Found/Crawl. Insul.	87	27	62	19	2	24	4					41,412	1.61	1,947	0.41	671	2,619	7	680	217	11		476.01	0.067	81	0.103	168	97	0.113	11	11	6
Bandjoist Insul.	180	8	129	42	1	-	8					18,863	0.00	0	0.70	1,148	1,148	6	601	265	2		104.80	-	-	0.088	144	144	0.048	5	6	2
Exhaust Ventilation	155	22	103	29	1	-	22					115,905	0.00	0.74	(4,474)	(4,474)	(6)	(591)	(182)	(4)			747.78	-	-	-0.125	(203)	(203)	-0.059	3	-6	-4
Condensing Htg Sys Repl	174	0	139	35	0	-	-					515,514	0.00	0	0.00	0	0	152	14,832	5,194	0		2962.73	-	-	-	-	-	1.096	107	148	-
Non-Cond Htg Sys Repl	27	0	20	7	0	-	-					80,066	0.00	0	0.00	0	0	21	2,086	800	0		2965.40	-	-	-	-	-	1.072	104	114	-
Electric Htg Sys Repl	4	4	0	0	0	-	4					15,595	0.00	0	0.49	806	806	0	0	0	0		3898.75	-	-	0.124	202	202	-	-	-	-
Heat Pump Repl	10	10	0	0	0	-	10					52,052	0.00	0	0.88	1,444	1,444	0	0	0	0		5205.22	-	-	0						

Costs for Measures Without Energy Impacts Installed in 314 Total Households with Spending and/or Energy Impacts:

Total		1,119,848	3566.40
Unspecified Insul.	299	86,389	288.92
Duct Sealing	5	1,171	234.17
Duct Insulation	16	969	60.55
Damming Material	160	4,242	26.51
Htg. Sys. Tune & Clean	204	33,479	164.11
Htg. Sys./WH Other	174	53,537	307.68
Air Conditioning Work	3	2,320	773.33
Water Heater Repair	19	2,090	109.99
Refrigerator Coil Clean	0	0	0.00
Waterbed Mattress Pad	0	0	0.00
Programmable Total	0	0	0.00
Unspecified Utility Meas.	0	0	0.00
CO Detector	255	17,258	67.68
Smoke Detector	219	10,966	50.07
Fuses	1	120	120.00
Htg Sys Safety Check	0	0	0.00
Htg Sys Ventilation	36	5,290	146.94
Water Heater Ventilation	106	29,997	282.99
Bathroom Ventilation	25	3,807	152.27
Other Exhaust Ventilation	143	15,108	105.65
Health/Safety Repairs	0	0	0.00
Health/Safety Other	66	5,467	82.83
Consumables	0	0	0.00
General Repairs	244	86,205	353.30
Meter Refrig (no action)	0	0	0.00
Meter Freezer (no action)	0	0	0.00
Support	231	647,265	2802.01
Transportation Allowance	0	0	0.00
Landlord Contr Misc	0	0	0.00
Landlord Contr Furnace	0	0	0.00
Landlord Contr DHW	0	0	0.00
Client Contr (Any)	0	0	0.00
Lead Safe Work	254	114,171	449.49
Unspecified	0	0	0.00

Total Reported Materials, Labor, and Support Costs:

Grand Total of Expenditures:

**West Central Development Corporation
Calendar Year 2011
Costs, Fuel, and Demand Impacts for All Measures**

	Number of Households with Impacts					Count of Households with Electricity Impacts by Season					Estimated First-Year Savings										Average Estimated First Year Measure Cost and Savings									
											Spending on Materials & Labor (\$)	Electricity				Gas		Propane	Fuel Oil	Spending on Materials & Labor (\$)	Electricity				Gas		Propane	Fuel Oil		
Measure	Total	Electric	Gas	Propane	Fuel Oil	Cooling	Heating				Summer kW	kWh	Winter kW	kWh	Annual kWh	Pk-Day therms	Annual therms	gallons	gallons		Summer kW	kWh	Winter kW	kWh	Annual kWh	Pk-Day therms	Annual therms	gallons	gallons	
OVERALL (Energy Measure)	224	224	179	31	2	224	211			1,082,756	94.5		45.8		239,763	456	41,200	10,800	695	4833.73	0.422		0.217		1,070	2,549	230	348	347	
Shell & Htg. Sys.	224	211	174	30	2	210	18			946,132	86.0	103,665	34.2	49,326	152,990	441	37,995	10,408	695		4049	494	1,898	2,740	725	2,534	218	347	347	
Wall Insul.	141	130	110	18	2	129	11			145,091	31.47	37,955	5.64	8,150	46,106	96	8,313	1,644	58		1029.02	0.244	294	0.513	741	355	0.877	76	91	29
Open Blown Ceiling Insul.	199	187	151	28	2	186	18			133,227	29.58	35,635	13.44	19,404	55,039	58	4,976	2,100	140		669.48	0.159	192	0.747	1,078	294	0.382	33	75	70
Cavity Fill Insul.	36	29	28	6	0	29	2			21,580	2.71	3,267	1.58	2,277	5,544	16	1,380	468	0		599.45	0.093	113	0.788	1,138	191	0.572	49	78	-
Sloped Attic Insul.	110	96	81	17	2	95	10			51,385	10.33	12,461	4.29	6,190	18,652	45	3,916	976	44		467.14	0.109	131	0.429	619	194	0.561	48	57	22
Kneewall Insul.	87	78	67	12	1	77	7			14,002	2.40	2,891	1.38	1,997	4,889	9	770	185	1		160.94	0.031	38	0.198	285	63	0.133	11	15	1
Infil. Reduction	222	210	172	30	2	209	18			114,675	6.15	7,419	5.24	7,560	14,979	34	2,928	722	20		516.56	0.029	35	0.291	420	71	0.198	17	24	10
Found./Crawl. Insul.	141	41	105	24	2	32	10			44,289	3.35	4,036	1.86	2,686	6,721	12	1,039	393	2		314.10	0.105	126	0.186	269	164	0.115	10	16	1
Bandjoist Insul.	99	11	66	21	1	-	11			7,158	0.00	0	0.56	807	807	3	277	142	2		72.30	-	-	0.051	73	73	0.049	4	7	2
Exhaust Ventilation	445	6	33	5	1	-	6			20,354	0.00	0	0.85	(1,220)	(2,202)	(3)	(239)	(440)	(5)		492.32	-	-	-0.141	(203)	(203)	-0.044	-7	18	-5
Condensing Htg Sys Repl	111	0	97	12	2	-	-			333,930	0.00	0	0.00	0	0	161	13,901	3,816	433		3006.38	-	-	-	-	1.663	143	318	216	-
Non-Cond Htg Sys Repl	10	0	10	0	0	-	-			21,875	0.00	0	0.00	0	0	9	735	0	0		2187.47	-	-	-	-	0.853	73	-	-	-
Electric Htg Sys Repl	6	6	0	0	0	-	6			30,356	0.00	0	0.89	1,291	1,291	0	0	0	0		5059.32	-	-	0.149	215	215	-	-	-	-
Heat Pump Repl	1	1	0	0	0	-	1			8,210	0.00	0	0.13	184	184	0	0	0	0		8209.91	-	-	0.127	184	184	-	-	-	-
Other Htg Sys Repl	0	0	0	0	0	-	0			0	0.00	0	0.00	0	0															

Costs for Measures Without Energy Impacts Installed in 224 Total Households with Spending and/or Energy Impacts:

Total		852,666	3806.55
Unspecified Insul.	213	48,876	229.47
Duct Sealing	38	2,548	67.06
Duct Insulation	140	6,200	44.29
Damming Material	157	7,541	48.03
Htg. Sys. Tune & Clean	82	13,766	167.88
Htg. Sys./WH Other	174	77,951	447.99
Air Conditioning Work	20	1,644	82.20
Water Heater Repair	16	1,082	67.61
Refrigerator Coil Clean	0	0	0.00
Waterbed Mattress Pad	0	0	0.00
Programmable Tstat	0	0	0.00
Unspecified Utility Meas.	0	0	0.00
CO Detector	73	2,906	39.81
Smoke Detector	40	2,662	66.56
Fuses	10	369	36.86
Htg Sys Safety Check	128	22,244	173.78
Htg Sys Ventilation	811	10,517	129.84
Water Heater Ventilation	85	14,474	170.28
Bathroom Ventilation	121	7,467	61.71
Other Exhaust Ventilation	176	12,422	70.58
Health/Safety Repairs	0	0	0.00
Health/Safety Other	155	16,801	108.39
Consumables	0	0	0.00
General Repairs	220	125,359	569.81
Meter Refrig (no action)	0	0	0.00
Meter Freezer (no action)	0	0	0.00
Support	214	424,650	1984.35
Transportation Allowance	0	0	0.00
Landlord Contr Misc	0	0	0.00
Landlord Contr Furnace	0	0	0.00
Landlord Contr DHW	0	0	0.00
Client Contr (Any)	0	0	0.00
Lead Safe Work	163	44,394	272.35
Unspecified	136	8,792	64.65

Total Reported Materials, Labor, and Support Costs:

Grand Total of Expenditures:

Costs, Fuel, and Demand Impacts for All Measures

	Number of Households with Impacts					Count of Households with Electricity Impacts by Season				Estimated First-Year Savings										Average Estimated First Year Measure Cost and Savings											
										Spending on Materials & Labor (\$)		Electricity		Gas		Propane		Fuel Oil		Spending on Materials & Labor (\$)		Electricity		Gas		Propane		Fuel Oil			
Measure	Total	Electric	Gas	Propane	Fuel Oil	Cooling	Heating			Summer kW	kWh	Winter kW	kWh	Annual kWh	Pk-Day therms	Annual therms	gallons	gallons		Summer kW	kWh	Winter kW	kWh	Annual kWh	Pk-Day therms	Annual therms	gallons	gallons			
OVERALL (Energy Measures)	510	494	501	2	0	494	453		2,662,814	171.7		62.0		483,574	1,224	112,315	473	0	5221.20	0.348		0.137		979	2,444	224	237	-			
Shell & Htg. Sys.	510	415	501	2	0	414	7		2,259,642	138.8	167,363	12.5	18,797	186,160	1,178	104,113	438	0	4430.67	0.335	404	1,787	2,685	449	2,351	208	219	-			
Wall Insul.	304	244	303	0	0	244	1		502,715	51.99	62,696	0.92	1,349	64,046	265	23,330	0	0	1653.67	0.213	257	0.920	1,349	262	0.876	77	-	-			
Open Blown Ceiling Insul.	419	345	415	1	0	344	3		441,556	61.86	74,604	1.48	2,169	76,773	226	19,880	212	0	1053.23	0.180	217	0.493	723	223	0.544	48	212	-			
Cavity Fill Insul.	3	2	3	0	0	2	0		915	0.00	1	0.00	0	1	0	1	0	0	305.00	0.000	0	-	-	0	0.002	0	-	-			
Sloped Attic Insul.	102	82	101	0	0	82	1		48,472	6.92	8,341	1.71	2,505	10,847	39	3,393	0	0	475.21	0.084	102	1,708	2,505	132	0.382	34	-	-			
Kneewall Insul.	114	93	112	1	0	93	1		52,416	3.24	3,902	0.34	498	4,401	14	1,261	14	0	459.79	0.035	42	0.340	498	47	0.128	11	14	-			
Infil. Reduction	506	415	497	2	0	414	7		294,915	10.34	12,472	5.01	7,612	20,084	113	10,053	45	0	582.84	0.025	30	0.716	1,087	48	0.228	20	23	-			
Found./Crawl. Insul.	263	55	258	0	0	50	5		264,710	4.43	5,346	2.64	4,031	9,377	189	16,742	0	0	1006.50	0.089	107	0.527	806	170	0.731	65	-	-			
Bandjoist Insul.	30	0	30	0	0	-	0		4,555	0.00	0	0.00	0	0	2	135	0	0	151.83	-	-	-	-	0.051	5	-	-	-			
Exhaust Ventilation	0	0	0	0	0	-	0		0	0.00	0	0.00	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-			
Condensing Htg Sys Repl	303	0	302	1	0	-	-		601,729	0.00	0	0.00	0	0	31	28,344	167	0	1985.90	-	-	-	-	-	1,059	94	167	-			
Non-Cond Htg Sys Repl	18	0	18	0	0	-	-		38,005	0.00	0	0.00	0	0	11	975	0	0	2111.39	-	-	-	-	-	0.601	54	-	-			
Electric Htg Sys Repl	5	5	0	0	0	-	5		9,655	0.00	0	0.42	632	632	0	0	0	0	1931.01	-	-	0.083	126	126	-	-	-	-			
Heat Pump Repl	0	0	0	0	0	-	0		0	0.00	0	0.00	0	0	0	0	0	0	0.00	-	-	-	-	-	-	-	-	-			
Other Htg Sys Repl	0	0	0	0	0	-	0		0	0.00	0	0.00	0	0	0	0	0	0	0.00	-	-	-	-	-	-	-	-	-			
	Total	Electric	Gas	Propane	Fuel Oil	Total	Electric	Gas	Propane	Fuel Oil	Other		Summer kW	kWh	Winter kW	kWh	Annual kWh	Pk-Day therms	Annual therms	gallons	gallons		Summer kW	kWh	Winter kW	kWh	Annual kWh	Pk-Day therms	Annual therms	gallons	gallons
Water Heating	370	7	362	1	0	685	11	672	2	0	0	0	0	294,843	0.0	0.0	951	46.2	8,202	35	0	796.87	0.000	0.002	-	136	0.128	23	35	-	
Temp. Reduct.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	-	-	-	-	-	-	-	-	
WH Wrap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	-	-	-	-	-	-	-	-	
Pipe Insul.	347	7	339	1	0	347	7	339	1	0	0	0	0	2,655	0.00	0.00	397	2.9	1,004	3	0	7.65	0.000	0.000	-	57	0.009	3	3	-	
LF Showerhead	20	0	20	0	0	21	0	21	0	0	0	0	0	286	0.00	0.00	0	0.5	144	0	0	14.30	-	-	-	0.023	7	-	-	-	
Faucet Aerator	56	1	55	0	0	67	1	96	0	0	0	0	0	414	0.00	0.00	44	0.4	135	0	0	7.39	0.000	0.001	-	44	0.008	2	-	-	
Std-Eff Wtr Htr Repl.	63	0	62	1	0	93	0	62	1	0	0	0	0	74,652	0.00	0.00	0	8.9	1,454	32	0	1184.95	-	-	-	170	0.144	23	32	-	
Hi-Eff Wtr Htr Repl.	157	0	154	0	0	157	0	154	0	0	0	0	0	216,835	0.01	0.00	510	39.5	5,465	0	-	1381.12	0.000	0.004	-	470	0.218	35	-	-	
Lighting	439	439				4,727	4,727						33,229	20.5	37.8	194,815	-	-	-	-	75.69	0.047	0.086	-	444	-	-	-	-	-	
CFL (5W)	0	0				0	0						0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
CFL (7W)	0	0				0	0						0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
CFL (9W)	0	0				0	0						0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
CFL (11W)	0	0				0	0						0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
CFL (14W)	0	0				0	0						0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
CFL (15W)	0	0				0	0						0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
CFL (18W)	0	0				0	0						0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
CFL (20W)	439	439				4,727	4,727						33,229	20.46	37.79	194,815	-	-	-	-	75.69	0.047	0.086	-	444	-	-	-	-	-	
CFL (23W)	0	0				0	0						0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
CFL (25W)	0	0				0	0						0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
CFL (30W)	0	0				0	0						0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
CFL_unknown	0	0				0	0						0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
Refrigerator Removal	0	0				0	0						0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
Refrigerator Exchange	133	133				133	133						68,833	11.08	10.36	90,104	-	-	-	-	517.54	0.083	0.078	-	677	-	-	-	-	-	
Freezer Removal	0	0				0	0						0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
Freezer Exchange	16	16				16	16						6,267	1.42	1.33	11,544	-	-	-	-	391.69	0.089	0.083	-	721	-	-	-	-	-	

Costs for Measures Without Energy Impacts Installed in 510 Total Households with Spending and/or Energy Impacts:

Total		1,747.273	3426.03
Unspecified Insul.	313	164,901	590.74
Duct Sealing	36	5,470	151.94
Duct Insulation	27	3,625	134.26
Damming Material	191	13,212	69.17
Htg. Sys. Tune & Clean	141	38,710	274.54
Htg. Sys./WH Other	134	25,529	190.51
Air Conditioning Work	3	500	166.67
Water Heater Repair	9	1,745	193.86
Refrigerator Coil Clean	0	0	0.00
Waterbed Mattress Pad	0	0	0.00
Programmable Tstat	48	3,176	66.17
Unspecified Utility Meas.	0	0	0.00
CO Detector	485	19,400	40.00
Smoke Detector	293	7,720	26.35
Fuses	0	0	0.00
Htg Sys Safety Check	0	0	0.00
Htg Sys Ventilation	104	10,624	102.16
Water Heater Ventilation	76	9,374	123.34
Bathroom Ventilation	437	370,561	847.97
Other Exhaust Ventilation	431	63,811	148.05
Health/Safety Repairs	0	0	0.00
Health/Safety Other	215	86,273	401.27
Consumables	0	0	0.00
General Repairs	464	401,850	866.06
Meter Refrig (no action)	0	0	0.00
Meter Freezer (no action)	0	0	0.00
Support	253	497,905	1968.01
Transportation Allowance	0	0	0.00
Landlord Contr Misc	0	0	0.00
Landlord Contr Furnace	0	0	0.00
Landlord Contr DHW	0	0	0.00
Client Contr (Any)	0	0	0.00
Lead Safe Work	0	0	0.00
Unspecified	18	2,887	160.40

Total Reported Materials, Labor, and Support Costs:

Grand Total of Expenditures:

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

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

Costs, Fuel, and Demand Impacts for Utility-Funded Measures

Grand Total of Expenditures:

Costs, Fuel, and Demand Impacts for Utility-Funded Measures

	Number of Households with Impacts					Count of Households with Electricity Impacts by Season					Estimated First-Year Savings										Average Estimated First Year Measure Cost and Savings										
											Spending on Materials & Labor (\$)		Electricity		Gas		Propane		Fuel Oil		Spending on Materials & Labor (\$)		Electricity		Gas		Propane		Fuel Oil		
Measure	Total	Electric	Gas	Propane	Fuel Oil	Cooling	Heating				Summer kW	kWh	Winter kW	kWh	Annual kWh	Pk-Day therms	Annual therms	gallons	gallons		Summer kW	kWh	Winter kW	kWh	Annual kWh	Pk-Day therms	Annual therms	gallons	gallons		
OVERALL (Energy Mea)	420	403	352	54	5	403	349			2,618,612	82.2		50.3		297,121	799	75,777	14,587	946		6234.79	0.204		0.144		737	2,270	215		270	189
Shell & Htg. Sys.	420	343	350	54	5	343	420			2,223,300	60.6	73.043	18.7	28.833	101.876	768	70.592	14,587	946		5293.57	0.177	213	0.045	69	297	2,194	202		270	189
Wall Insul.	221	159	177	33	5	159	6			568,300	24.95	30.089	6.75	10.391	40.479	176	16.197	3,069	365		2571.49	0.157	189	1.124	1,732	255	0.996	92		93	73
Open Blown Ceiling Insul.	243	174	194	38	3	174	8			244,556	19.94	24.046	3.61	5.565	29.611	103	9.473	2,437	116		1006.40	0.115	138	0.452	696	170	0.311	49		64	39
Cavity Fill Insul.	52	24	39	11	0	23	2			45,887	1.62	1.957	0.297	4.582	6.539	23	2.089	754	0		882.44	0.071	85	1.487	2,291	272	0.583	54		69	-
Sloped Attic Insul.	75	55	59	12	2	55	2			37,657	3.36	4.056	1.23	1.898	5,954	24	2,190	607	57		502.09	0.061	74	0.616	949	108	0.404	37		51	28
Kneewall Insul.	52	40	43	6	1	40	2			23,456	1.64	1.977	0.35	539	2,516	11	967	86	21		451.07	0.041	49	0.175	270	63	0.245	22		14	21
Infil. Reduction	419	343	349	54	5	343	11			253,798	6.30	7.592	2.32	3,578	11,170	73	6,688	1,322	35		605.72	0.018	22	0.211	325	33	0.208	19		24	7
Found/Crawl. Insul.	208	45	176	26	1	41	5			259,037	2.76	3,327	0.83	1,285	4,612	70	6,430	901	8		1245.37	0.067	81	0.167	257	102	0.397	37		35	8
Bandjoist Insul.	213	8	164	37	4	-	-			37,460	0.00	0	0.46	701	701	8	719	195	20		175.87	-	-	0.057	88	88	0.048	4		5	5
Exhaust Ventilation	171	5	142	23	1	-	5			104,770	0.00	0.66	0	(1,017)	(1,017)	(9)	(330)	(150)	(4)		613.69	-	-	-0.132	(203)	(203)	-0.064	6		7	-4
Condensing Htg Sys Repl	223	188	32	3	0	-	-			520,433	0.00	0	0.00	0	0	253	23,238	5,182	328		2333.78	-	-	-	-	1,345	124		162	109	
Non-Cond Htg Sys Repl	44	0	42	2	0	-	-			101,724	0.00	0	0.00	0	0	37	3,431	183	0		2311.91	-	-	-	-	0.889	82		91	-	
Electric Htg Sys Repl	8	8	0	0	0	-	8			26,223	0.00	0	0.85	1,311	1,311	0	0	0	0		3277.88	-	-	0.106	164	164	-	-	-	-	-
Heat Pump Repl	0	0	0	0	0	-	0			0	0.00	0	0.00	0	0	0	0	0	0		0.00	-	-	-	-	-	-	-	-	-	
Other Htg Sys Repl	0	0	0	0																											

Costs for Measures Without Energy Impacts Installed in 420 Total Households with Spending and/or Energy Impacts:

Total		2,042,570	4863.26
Unspecified Insul.	389	207,302	532.91
Duct Sealing	188	54,655	290.72
Duct Insulation	63	10,787	171.22
Damming Material	195	14,055	72.08
Htg. Sys. Tune & Clean	125	10,979	87.83
Htg. Sys./WH Other	71	24,300	342.25
Air Conditioning Work	0	0	0.00
Water Heater Repair	17	3,237	190.41
Refrigerator Coil Clean	0	0	0.00
Waterbed Mattress Pad	0	0	0.00
Programmable Total	0	0	0.00
Unspecified Utility Meas.	0	0	0.00
CO Detector	355	29,988	84.47
Smoke Detector	207	13,202	63.78
Fuses	7	981	140.19
Htg Sys Safety Check	0	0	0.00
Htg Sys Ventilation	0	0	0.00
Water Heater Ventilation	10	1,735	173.50
Bathroom Ventilation	47	7,788	165.69
Other Exhaust Ventilation	216	28,723	132.98
Health/Safety Repairs	0	0	0.00
Health/Safety Other	136	84,781	623.39
Consumables	291	12,717	43.70
General Repairs	333	212,720	638.80
Meter Refrig (no action)	0	0	0.00
Meter Freezer (no action)	0	0	0.00
Support	405	1,219,199	3010.37
Transportation Allowance	159	28,806	181.17
Landlord Contr Misc	0	0	0.00
Landlord Contr Furnace	0	0	0.00
Landlord Contr DHW	0	0	0.00
Client Contr (Any)	0	0	0.00
Lead Safe Work	234	76,371	326.37
Unspecified	4	246	61.53

Total Reported Materials, Labor, and Support Costs:

Grand Total of Expenditures:

Costs, Fuel, and Demand Impacts for Utility-Funded Measures

	Number of Households with Impacts					Count of Households with Electricity Impacts by Season		Estimated First-Year Savings							Average Estimated First Year Measure Cost and Savings													
	Total	Electric	Gas	Propane	Fuel Oil	Cooling	Heating	Spending on Materials & Labor (\$)	Summer kWh	kWh	Winter kW	kWh	Annual kWh	Pk-Day therms	Gas Annual therms	Propane gallons	Fuel Oil gallons	Spending on Materials & Labor (\$)	Summer kW	kWh	Electricity kW	kWh	Annual kWh	Pk-Day therms	Gas Annual therms	Propane gallons	Fuel Oil gallons	
Measure	Total	Electric	Gas	Propane	Fuel Oil	Cooling	Heating	Spending on Materials & Labor (\$)	Summer kWh	kWh	Winter kW	kWh	Annual kWh	Pk-Day therms	Gas Annual therms	Propane gallons	Fuel Oil gallons	Spending on Materials & Labor (\$)	Summer kW	kWh	Electricity kW	kWh	Annual kWh	Pk-Day therms	Gas Annual therms	Propane gallons	Fuel Oil gallons	
OVERALL (Energy Mea	356	351	283	54	3	351	325	2,398,435	103.2		53.4		298,850	644	62,478	12,771	604	6737.18	0.294		0.164		851	2,275	221	236	201	
Shell & Htg. Sys.	355	353	280	54	3	332	355	2,133,195	89.5	107,907	31.5	49,227	157,134	616	57,371	12,307	604	6009.00	0.269	325	0.089		139	472	2,199	205	228	201
Wall Insul.	247	232	206	28	3	232	9	588,624	36.94	44,547	12.77	19,946	64,493	172	16,073	2,638	174	2383.93	0.159	192	1,419	2,216	278	0.837	78	94	58	
Open Blown Ceiling Insul.	281	267	228	35	3	266	14	326,593	30.77	37,108	8.15	12,724	49,832	77	7,141	1,834	17	1162.25	0.116	140	0.582		909	187	0.336	31	52	6
Cavity Fill Insul.	73	55	61	11	1	55	0	60,691	4.02	4,852	0.00	0	4,852	37	3,451	503	60	831.38	0.073	88	-	-	88	0.607	57	46	60	
Sloped Attic Insul.	82	73	63	13	1	73	4	38,320	5.31	6,398	3.42	5,342	11,740	22	2,008	525	18	467.31	0.073	88	0.855	1,335	161	0.342	32	40	18	
Kneewall Insul.	47	40	36	7	1	40	2	31,078	1.66	1,997	0.24	377	2,374	5	469	58	15	661.22	0.041	50	0.121	188	59	0.140	13	8	15	
Infil. Reduction	348	328	272	52	3	327	15	267,153	6.03	7,271	3.00	4,680	11,952	35	3,227	905	19	767.68	0.018	22	0.200	312	36	0.127	12	17	6	
Found./Crawl. Insul.	177	71	136	28	2	69	11	147,979	4.75	5,734	2.74	4,277	10,011	20	1,881	483	13	339.64	0.069	83	0.249	389	141	0.148	14	17	7	
Bandjolet Insul.	213	10	170	31	2	-	10	39,625	0.00	0	0.95	1,488	1,488	10	971	195	7	186.03	-	-	0.095	149	149	0.061	6	6	6	
Exhaust Ventilation	124	6	98	17	2	-	6	96,988	0.00	0	-0.78	(1,220)	(1,220)	(5)	(502)	(95)	(7)	782.16	-	-	-0.130	(203)	(203)	-0.055	-5	-6	-4	
Condensing Htg Sys Repl	185	0	157	25	3	-	-	409,260	0.00	0	0.00	0	0	222	20,725	4,553	288	2212.21	-	-	-	-	-	1.416	132	182	96	
Non-Cond Htg Sys Repl	38	0	30	8	0	-	-	91,928	0.00	0	0.00	0	0	21	1,928	709	0	2419.16	-	-	-	-	-	0.690	64	89	-	
Electric Htg Sys Repl	9	9	0	0	0	-	9	34,957	0.00	0	1.03	1,614	1,614	0	0	0	0	3884.14	-	-	0.115	179	179	-	-	-	-	
Heat Pump Repl	0	0	0	0	0	-	0	0	0.00	0	0.00	0	0	0	0	0	0	0.00	-	-	-	-	-	-	-	-	-	
Other Htg Sys Repl	0	0	0	0	0	-	0	0																				

Total Reported Materials, Labor, and Support Costs:

Grand Total of Expenditures:

Upper Des Moines Opportunity Calendar Year 2011

	Number of Households with Impacts					Count of Households with Electricity Impacts by Season					Estimated First-Year Savings Electricity										Average Estimated First Year Measure Cost and Savings Average per Treated Household									
	Total	Electric	Gas	Propane	Fuel Oil	Cooling	Heating			Spending on Materials & Labor (\$)	Summer kW	kWh	Winter kW	kWh	Annual kWh	Pk-Day therms	Gas Annual therms	Propane gallons	Fuel Oil gallons	Spending on Materials & Labor (\$)	Summer kW	kWh	Winter kW	kWh	Annual kWh	Pk-Day therms	Gas Annual therms	Propane gallons	Fuel Oil gallons	
Measure	Total	Electric	Gas	Propane	Fuel Oil	Cooling	Heating			Spending on Materials & Labor (\$)	Summer kW	kWh	Winter kW	kWh	Annual kWh	Pk-Day therms	Gas Annual therms	Propane gallons	Fuel Oil gallons	Spending on Materials & Labor (\$)	Summer kW	kWh	Winter kW	kWh	Annual kWh	Pk-Day therms	Gas Annual therms	Propane gallons	Fuel Oil gallons	
OVERALL (Energy Mea	314	311	230	57	2	311	306			2,272,489	93.9		76.7		338,870	604	60,768	18,265	238	7237.23	0.302		0.251		1,090	2,624	264	320	119	
Shell & Htg. Sys.	314	279	227	57	2	277	314			2,039,020	76.5	92,260	50.8	82,946	175,205	578	56,250	17,824	238	6493.69	0.276	333	0.162	264	628	2,545	248	313	119	
Wall Insul.	230	198	175	40	1	197	14			520,936	31.00	37,384	19.56	31,912	69,296	167	16,298	4,041	68	2284.94	0.157	190	1.397	2,279	350	0.957	93	101	68	
Open Blown Ceiling Insul.	291	253	209	53	2	252	27			216,529	20.20	24,366	13.04	21,265	45,632	69	6,678	2,595	15	744.08	0.080	97	0.483	788	180	0.328	32	49	8	
Cavity Fill Insul.	195	159	141	38	1	158	15			227,947	10.07	12,391	9.03	14,736	27,127	73	7,141	2,333	115	1168.96	0.065	78	0.502	982	171	0.520	51	61	115	
Sloped Attic Insul.	143	119	105	26	0	118	12			74,131	7.30	8,808	6.12	9,979	18,787	50	4,840	1,318	0	518.40	0.062	75	0.510	832	158	0.474	46	51	-	
Kneewall Insul.	62	49	47	13	0	48	2			24,335	1.36	1,644	0.72	1,181	2,825	11	1,034	456	0	392.50	0.028	34	0.362	590	58	0.226	22	35	-	
Infil. Reduction	310	269	225	57	2	268	26			138,543	4.88	5,881	2.77	4,512	10,393	27	2,652	786	31	446.91	0.018	22	0.106	174	39	0.121	12	14	15	
Found./Crawl. Insul.	87	25	62	19	2	22	4			41,412	1.48	1,785	0.41	671	2,456	7	680	217	11	476.01	0.067	81	0.103	168	98	0.113	11	11	6	
Bandjoist Insul.	180	8	129	42	1	-	-			18,863	0.00	0	0.70	1,148	1,148	6	601	265	2	104.80	-	-	0.088	144	144	0.048	5	6	2	
Exhaust Ventilation	155	22	103	29	1	-	22			115,905	0.00	0	-2.74	(4,474)	(4,474)	(6)	(591)	(182)	(4)	747.78	-	-	-0.125	(203)	(203)	-0.059	-6	-	-4	
Condensing Htg Sys Repl	174	0	139	35	0	-	-			515,514	0.00	0	0.00	0	0	152	14,832	5,194	0	2662.73	-	-	-	-	-	-	196	107	148	
Non-Cond Htg Sys Repl	27	0	20	7	0	-	-			80,066	0.00	0	0.00	0	0	21	2,086	800	0	2965.40	-	-	-	-	-	-	1,072	104	114	
Electric Htg Sys Repl	3	3	0	0	0	-	3			12,785	0.00	0	0.35	571	571	0	0	0	0	4261.67	-	-	0.117	190	190	-	-	-	-	
Heat Pump Repl	10	10	0	0	0	-	10			52,052	0.00	0	0.88	1,444	1,444	0	0	0	0	5205.22	-	-	0.088	144	144	-	-	-	-	
Other Htg Sys Repl	0	0	0	0	0	-	0			0	0.00	0	0.00	0	0	0	0	0	0	0.00	-	-	-	-	-	-	-	-	-	
	Total	Electric	Gas	Propane	Fuel Oil	Total	Electric	Gas	Propane	Fuel Oil	Other			Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons			Summer kW	Winter kW	Annual kWh	Pk-Day therms	Annual therms	Propane gallons	Fuel Oil gallons	
Water Heating	305	101	182	22	0	463	134	296	33	0	0	149,806	0.0	0.1	7,803	25.3	4,518	441	0	491.17	0.000		0.001	-	77	0.142	25	20	-	
Temp. Reduct.	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0	0.0	0	0	0	0.00	-	-	-	-	-	-	-	-	-	
WH Wrap	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0	0.0	0	0	0	0.00	-	-	-	-	-	-	-	-	-	
Pipe Insul.	303	101	181	21	0	303	101	181	21	0	0	1,815	0.00	0.01	5,727	1.7	586	74	0	5.99	0.000		0.000	57	0.009	3	4	-	-	
LF Showerhead	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0	0.0	0	0	0	0.00	-	-	-	-	-	-	-	-	-	
Faucet Aerator	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0	0.0	0	0	0	0.00	-	-	-	-	-	-	-	-	-	
Std-Eff Wtr Htr Repl.	66	27	31	8	0	66	27	31	8	0	0	47,127	0.00	0.03	1,056	4.5	730	186	0	714.05	0.000		0.001	-	39	0.144	24	23	-	
High-Eff Wtr Htr Repl.	94	6	84	4	0	94	6	84	4	0	0	100,866	0.00	0.03	1,021	4.2	700	170	0	1073.02	0.000		0.004	-	170	0.234	38	45	-	
Lighting	301	301				3,745	3,745					26,765	10.5	19.4	100,093	19.6	3,202	181	0	88.92	0.035		0.065	-	333	-	-	-	-	
CFL (5W)	0	0				0	0					0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
CFL (7W)	0	0				0	0					0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
CFL (9W)	0	0				0	0					0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
CFL (11W)	234	234				2,461	2,461					17,504	5.62	10.37	53,479	-	-	-	-	74.80	0.024		0.044	229	-	-	-	-	-	
CFL (14W)	0	0				0	0					0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
CFL (15W)	74	74				894	894					6,531	3.17	5.85	30,146	-	-	-	-	88.26	0.043		0.079	407	-	-	-	-	-	
CFL (18W)	0	0				0	0					0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
CFL (20W)	32	32				366	366					2,562	1.58	2.93	15,084	-	-	-	-	80.06	0.049		0.091	471	-	-	-	-	-	
CFL (23W)	3	3				20	20					140	0.12	0.22	1,154	-	-	-	-	46.67	0.040		0.075	385	-	-	-	-	-	
CFL (25W)	2	2				4	4					28	0.02	0.04	231	-	-	-	-	14.00	0.012		0.022	115	-	-	-	-	-	
CFL (30W)	0	0				0	0					0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
CFL_unknown	0	0				0	0					0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
Refrigerator Removal	0	0				0	0					0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
Refrigerator Exchange	76	76				77	77					54,402	6.42	6.00	52,166	-	-	-	-	715.82	0.084		0.079	686	-	-	-	-	-	
Freezer Removal	0	0				0	0					0	0.00	0.00	0	-	-	-	-	0.00	-	-	-	-	-	-	-	-	-	
Freezer Exchange	6	6				5	5					2,495	0.44	0.41	3,603	-	-	-	-	415.91	0.074		0.069	600	-	-	-	-	-	

Costs for Measures Without Energy Impacts Installed in 314 Total Households with Spending and/or Energy Impacts:

Total		1,119,371	3564.88
Unspecified Insul.	299	86,389	288.92
Duct Sealing	5	1,171	234.17
Duct Insulation	16	969	60.55
Damming Material	160	4,242	25.51
Htg. Sys. Tune & Clean	204	33,479	164.11
Htg. Sys./WH Other	173	53,397	308.65
Air Conditioning Work	3	2,320	773.33
Water Heater Repair	19	2,090	109.99
Refrigerator Coil Clean	0	0	0.00
Waterbed Mattress Pad	0	0	0.00
Programmable Tstat	0	0	0.00
Unspecified Utility Meas.	0	0	0.00
CO Detector	254	17,216	67.78
Smoke Detector	219	10,966	50.07
Fuses	1	120	120.00
Htg Sys Safety Check	0	0	0.00
Htg Sys Ventilation	36	5,290	146.94
Water Heater Ventilation	106	29,987	282.99
Bathroom Ventilation	25	3,807	152.27
Other Exhaust Ventilation	143	15,108	105.65
Health/Safety Repairs	0	0	0.00
Health/Safety Other	65	5,387	82.87
Consumables	0	0	0.00
General Repairs	244	85,990	352.42
Meter Refrig (no action)	0	0	0.00
Meter Freezer (no action)	0	0	0.00
Support	231	647,265	2802.01
Transportation Allowance	0	0	0.00
Landlord Contr Misc	0	0	0.00
Landlord Contr Furnace	0	0	0.00
Landlord Contr DHW	0	0	0.00
Client Contr (Any)	0	0	0.00
Lead Safe Work	254	114,171	449.49
Unspecified	0	0	0.00

Total Reported Materials, Labor, and Support Costs:

Grand Total of Expenditures:

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APPENDIX A -- CLIENT CHARACTERISTICS

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Household characteristics										
Quarterly gross income	\$3,282	\$3,363	\$3,649	\$3,618	\$3,727	\$3,911	\$4,002	\$4,190	\$4,130	\$4,344
Average members	2.6	2.6	2.8	2.8	2.8	2.9	2.8	2.8	2.9	2.9
Percentage of households with:										
Elderly	42.5	38.9	36.3	35.2	32.3	32.6	31.5	34.2	24.0	29.1
Handicapped	47.6	47.3	42.0	42.7	42.5	43.1	42.7	35.7	25.4	32.9
Young children	NA	15.8	9.7	18.3	15.6	18.7	21.5	21.5	18.6	25.2
Housing type (%)										
Single family home	92.4	92.9	91.2	91.0	90.3	90.7	87.7	87.9	82.6	89.6
Mobile home	7.4	5.8	8.1	7.2	7.7	7.8	7.5	9.9	7.6	10.0
Duplex	0.0	0.4	0.7	0.9	2.1	0.6	0.1	0.3	0.3	0.1
Three+ unit apartment	0.1	0.9	0.2	0.8	0.0	0.4	1.3	1.0	6.8	0.3
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	0.0	0.0	0.0	0.0	0.0	0.6	3.5	1.0	2.6	0.0
Heating system type (%)										
Natural gas	84.5	85.5	84.0	84.4	84.0	84.3	85.8	85.6	82.7	81.0
Propane	11.8	11.4	12.2	10.7	11.7	11.4	10.1	9.3	11.9	12.9
Fuel oil	1.4	1.4	1.9	1.4	1.0	0.6	0.7	0.3	0.8	0.8
Electricity	2.2	85.5	1.9	3.4	3.3	3.5	3.3	4.7	4.5	5.4
Other	0.0	0.0	0.2	0.0	0.0	0.2	0.1	0.1	0.0	0.0
Air conditioning type (%)										
Central	41.6	44.1	48.4	47.8	49.8	56.3	52.5	55.3	54.1	58.7
Room	44.5	39.4	42.4	39.8	37.4	8.7	34.6	32.5	31.4	27.8
None or Missing Data	13.9	16.5	9.4	12.4	12.8	35.0	12.8	12.2	14.5	13.6
Blower door readings (average cfm50)										
Pre	3,555	3,642	3,733	3,723	3,856	3,639	3,608	3,374	3,281	3,294
Post	2,341	2,348	2,355	2,310	2,389	2,216	2,215	2,120	2,040	2,054

