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Home Energy Rebate Program Outcomes

by Cold Climate Housing Research Center

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Abstract

In 2008, 2009 and 2011 the Alaska State Legislature provided a total of $461 million to expand and enhance the Home Energy Rebate Program and the Alaska Weatherization Assistance Program. This report uses data from Alaska Housing Finance Corporation's Alaska databases that contain data about home energy ratings and energy efficiency retrofits performed under AHFC's Home Energy Rebate Program. This data is used to analyze energy, economic, and environmental outcomes realized through the Home Energy Rebate Program. The focus of this report is how well the Home Energy Rebate Program has reached its intended outcome to date, with attention to the outcomes in the 40 House Election Districts of Alaska. As of September 31, 2011 the Home Energy Rebate Program has produced an average 33.3% improvement in home energy efficiency. This increased home energy efficiency is directly related to an estimated average annual cost savings of $1,297. Almost 16,500 Alaska homeowners have completed the Home Energy Rebate Program, saving an estimated $21.7 million in annual homeowner energy costs, resulting in a direct and indirect economic impact of approximately $32.6 million. Total estimated energy savings from the Home Energy Rebate Program to date is nearing 1.7 trillion BTUs saved annually, which is roughly equivalent to 12.1 million gallons of #1 heating oil or 16.5 million therms of natural gas.

Home Energy Rebate Program Outcomes

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Introduction

Overview

During 2007 and 2008 oil prices reached record highs, peaking at $147 per barrel in the summer of 2008[1] and displaying extreme volatility since then.[2] High worldwide crude oil prices resulted in very high home energy costs for Alaskans,[3] and placed many Alaskans and the communities where they live into crisis. Many Alaskans were forced to choose between heating their home and buying groceries. The 2008 spike in oil prices highlighted the volatility of the oil economy and underscored the importance of energy efficiency programs in securing the future of our communities and our economy.

In response, Alaska's policy makers developed a multifaceted strategy of immediate and long-term relief. In 2008, immediate economic relief came in the form of a cash distribution for every Alaska resident who applied for and received a permanent fund dividend in 2007. Mid- to long-term relief was offered through the funding of home energy efficiency retrofit programs. In 2008 the Alaska State Legislature (Legislature) passed SB 256 and SB 289 that provided $300 million to expand and enhance the Weatherization Assistance Program and establish the Home Energy Rebate Program. In a later special session, the Legislature added an additional $60 million to the Home Energy Rebate Program through HB 4001. SB 289 also expanded the Weatherization Assistance Program's eligibility requirements from 60% of median income up to 100% of median income. In 2011 the Legislature appropriated an additional $101.5 million to the Home Energy Rebate and Weatherization Assistance Programs.[4] This allowed these programs to continue at a similar level through fiscal year 2012.

Legislative sponsors indicated that the goals of increased funding for home energy efficiency programs were to reduce home energy bills by 30%, create jobs, and increase affordability of home heating and electricity.[5] Dan Fauske, Alaska Housing Finance Corporation CEO/Executive Director, testified that "the intent addresses quality of life issues and improvement of the housing stock, but most importantly, maximizing the reduction of energy use in the state."[6] Dr. John Weis, aid to Senator Lyman Hoffman, testified about a further goal "to make certain that Alaskans suffering the most at the lowest income levels are receiving help first."[7] The Weatherization Assistance Program has assisted households at or

[1] J. Simpkins, Why crude oil prices could reach a record high in 2011. NuWire Investor, Retrieved on December 9, 2010: http://www.nuwireinvestor.com/articles/why-crude-oil-prices-could-reach-a-record-high-in-56583.aspx

[2] M. Moynihan, The Highest Oil Spike In History. The Huffington Post. Retrieved on September 22, 2008: http://www.huffingtonpost.com/michael-moynihan/the-highest-oil-price-spi_b_128437.html

[3] In March 2008 the national average for residential heating reached its highest point in a couple year period at $3.852 per gallon for #2 heating oil (http://www.eia.doe.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=W_EPD2F_PRS_NUS_DPG&f=W), while in Alaska the average was upwards of $5.50 per gallon and as high as $9.10 per gallon in some rural villages (www.commerce.state.ak.us/dca/pub/BulkFuelReportJune2008Update.pdf).

[4] S. Waterman (personal communication, November 3, 2011)

[5] Alaska State Senate Finance Committee testimony (2008, March 12). Retrieved on January 17, 2012: www.legis.state.ak.us/pdf/25/M/SFIN2008-03-121457.PDF

[6] Alaska Housing Finance Committee testimony (2008, April 3). Retrieved on January 17, 2012: www.legis.state.ak.us/pdf/25/M/HFIN2008-04-030842.PDF

[7] Ibid.

below median income,[8] whereas the Home Energy Rebate Program has been available to all homeowners, thereby creating mechanisms to assist people at all income levels to improve their home's efficiency. In 2008, the program funding was expected to help more than 16,000 households, generate an average home energy use reduction of nearly 30% per home, stimulate significant economic activity in the home retrofit market, and decrease the portion of monthly income Alaska homeowners spend on energy.[9]

Though oil prices have fallen from the highs of $147/barrel since 2008, the cost of energy for many Alaskans remains high. In 2010, rural villages in Interior Alaska were paying up to $10.00/gallon for heating oil.[10] Industry experts predict oil prices will continue to rise over the long term; [11] therefore, reducing home energy costs through energy efficient retrofits add to the stability of Alaska's communities and economy.

As of September 30, 2011, the State of Alaska has invested approximately $111 million in rebates to almost 16,500 Alaska homes, and homeowners have invested at least an additional $73 million in retrofitting their homes, or a 66% match, coming close to meeting the Legislature's goal.[12] These investments have resulted in an estimated annual energy cost savings of approximately $21.7 million[13] and 1.7 trillion BTUs. These savings are roughly equivalent to 12.1 million gallons of #1 heating oil or 16.5 million therms of natural gas. Based on these estimates, it will take 5.1 years for the saved income generated by the program to exceed the state's investment in the program.

An adjunct to the Home Energy Rebate Program is the Five Star Plus (5 Star +) New Home Energy Rebate that encourages homeowners to build or purchase new energy efficient homes. This program provides a $7,500 rebate to homeowners who finance a new home that is rated 5 Star +. As of September 30, 2011 AHFC had received 1,358 applications for this program and issued 1,154 rebates,

[8] **Median income.** Median income is the amount which divides the income distribution into two equal groups, half having incomes above the median, half having incomes below the median. The medians for households, families, and unrelated individuals are based on all households, families, and unrelated individuals, respectively. The medians for people are based on people 15 years old and over with income (U.S. Census Bureau Current Population Survey, Retrieved on March 14, 2012. http://www.census.gov/population/www/cps/cpsdef.html).

[9] Alaska State Senate Labor and Commerce Committee testimony (2008, March 4). Retrieved on January 17, 2012: www.legis.state.ak.us/pdf/25/M/SL!C2008-03-041332.PDF.
The calculation of 33,000 homes is based on the 17,000 homes mentioned in the committee testimony for the Weatherization Assistance Program, plus a conservative estimate of the number of homes anticipated to access the Home Energy Rebate Program. The minimum number of homes that could receive assistance from the $160,000 million appropriated in 2008 and 2009 was estimated at 16,000.

[10] Alaska Division of Community & Regional Affairs. Current Community Conditions: Fuel Prices Across Alaska January 2011 Update. Retrieved on November 5, 2011: www.commerce.state.ak.us/dca/pub/Fuel_Report_Jun_2010_Final.pdf).

[11] For further information, *see* J. Simpkins, Why crude oil prices could reach a record high in 2011. NuWire Investor, http://www.nuwireinvestor.com/articles/why-crude-oil-prices-could-reach-a-record-high-in-56583.aspx

[12] This only represents the receipts received by the Home Energy Rebate Program; many homeowners have spent much more on energy retrofits that were not eligible for rebate, so they did not turn in their receipts, therefore this match is probably substantially higher than reported herein.

[13] Figures are reported in 2011 dollars.

for an 85% completion rate. Additional information on this program, by the House District, can be found in Appendix A.

This report analyzes outcomes from the Home Energy Rebate Program and presents an overview of statewide and regional impacts resulting from the State's investment. Specific information about the impact of the program on each individual House District is contained in Appendix A. The report also contains a brief discussion of the Weatherization Assistance Program, though a more comprehensive view of Weatherization Assistance Program outcomes will be presented in a separate report, "Weatherization Assistance Program Outcomes."

Energy Efficiency Benefits

Alaskans live in the most extreme climate in the United States. Heating and lighting their homes requires large amounts of energy that in turn equates to high home energy bills. Historically, home construction in Alaska mimicked the building styles used in more temperate climates, yet Alaska's average Heating Degree Days[14] (HDD) are significantly higher than in other states.[15] Building and retrofitting homes in a manner more consistent with Alaska's extreme climate can reduce these energy costs.

Alaska has approximately 307,000 homes in varying states of quality and energy efficiency.[16] The 2009 Alaska Housing Assessment report[17] presents comprehensive data on the quality of housing across Alaska. Findings from this study indicate that the energy consumption of homes varies from a regional average of 75,818 BTU/ft^2 in urban Southeast and Southcentral communities (outside of Anchorage) to 115,833 BTU/ft^2 in isolated rural communities.[18] Further, home quality is assessed by the percent of homes unable to maintain warm indoor temperatures on the coldest days, the percent of homes that are drafty, and a number of other indicators of home quality and energy efficiency.[19] These indicators vary widely across Alaska's regions, but also highlight that in every community and region there is a continuum from very inefficient to highly efficient homes.

[14] Heating Degree Days (HDD) are a climate statistic use to compare the severity and length of the heating season in different locations. From the U.S. Department of Energy. Retrieved on November 5, 2011: http://apps1.eere.energy.gov/states/residential.cfm/state=AK

[15] Ibid.

[16] U. S. Census Bureau. Retrieved on November 5, 2011: http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk

[17] Alaska Housing Finance Corporation, 2009 AHFC Alaska Housing Assessment. Retrieved on January 17, 2012: cchrc.org/docs/reports/TR_2009_02_2009_AK_Housing_Assessment_Final.pdf

[18] Ibid. p. 13.

[19] This includes: unable to maintain temperature in house, window type, how warm the floor is, draftiness, ice build up inside the home, mold or mildew around the windows. Ibid. pp. 42-44.

Based on the above cited home quality indicators, CCHRC estimated that Alaska could save up to 18 million MMBTU (18 trillion BTU) through energy efficiency improvements of Alaska's homes.[20] However, based upon the findings reported within, if all Alaska homes were retrofitted to achieve the same percent of energy savings achieved in the Home Energy Rebate program, Alaskans could achieve up to 26 million MMBTUs in energy savings.

Home Energy Rebate Program Goals

The State's recent investment in the Home Energy Rebate Program was intended to stimulate private investment in home retrofits, make homes more energy efficient, and reduce Alaskan's energy costs.[21] The investment in home retrofits also creates jobs and stimulates the construction industry. Increased home energy efficiency has direct implications for improved home comfort and durability, as well as reductions in greenhouse gas and particulate matter emissions from lower fuel consumption. Research has linked home energy retrofits to increased occupant health and safety and numerous other ancillary benefits.[22] Improved energy efficiency, environmental and economic outcomes are associated with enhanced quality of life (better air quality, less financial stress, warmer homes, etc.) and long-term economic benefits (e.g., increased salability of homes, new employment markets, more discretionary spending money, increased knowledge and interest in energy efficient retrofits, etc.), and other associated social benefits (neighborhood stability from fewer people moving out of unaffordable homes).[23] Figure 1 represents the potential benefits that maybe realized from home energy retrofit programs.

[20] These calculations are based on estimates of the quality of existing homes in Alaska presented in the 2009 AHFC Alaska Housing Assessment prepared by Information Insights for CCHRC and AHFC. For more details on the calculations contact CCHRC at (907) 457-3454 or contact Dr. Davies directly at john@cchrc.org.

[21] Alaska Housing Finance Committee testimony (2008, April 3). Retrieved on January 17, 2012: www.legis.state.ak.us/pdf/25/M/HFIN2008-04-030842.PDF

[22] Ibid. and D. Jacobs, T. Kelly, & J. Sobolewski, (2007). Linking public health, housing, and indoor environmental policy: Successes and challenges at local and federal agencies in the United States. *Environmental Health Perspectives*, 115(6), 976-982.

[23] Ibid.

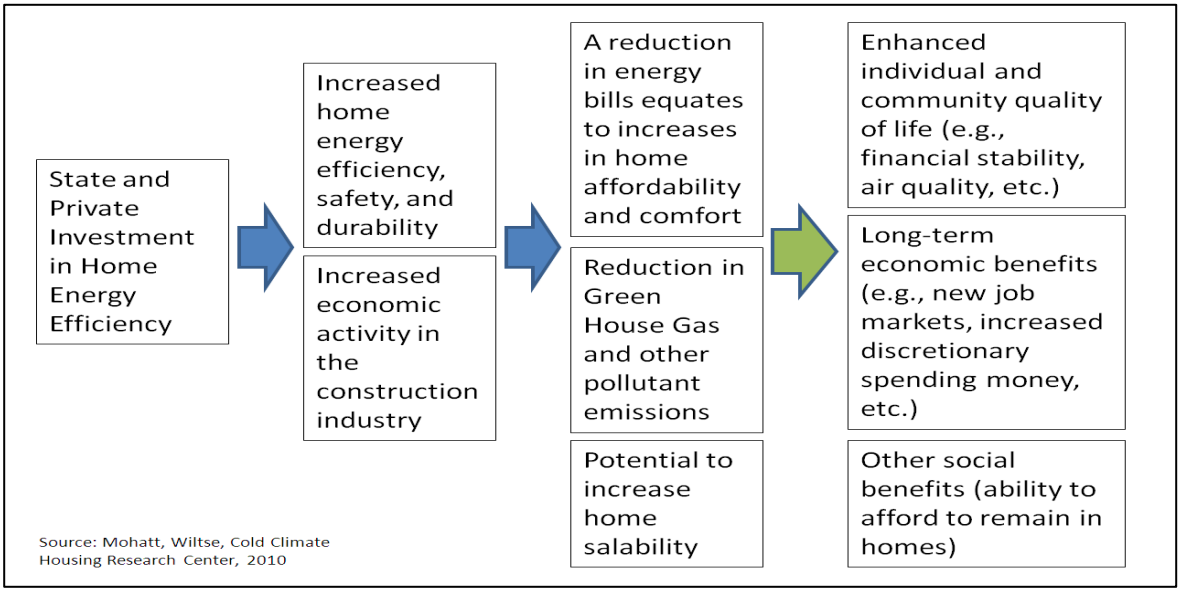


Figure 1: Theory of Home Energy Efficiency Program Impacts

To carry out, manage, and report on the Home Energy Rebate program, AHFC has undertaken substantial data collection and evaluation efforts including development of the Alaska Retrofit Information System (ARIS) and the Home Energy Rebate Program databases. Both systems are used to collect and organize data about energy efficiency retrofits and home energy ratings from participants in AHFC's Home Energy Rebate Program. The report uses data from these systems to present and analyze energy, economic, and environmental outcomes realized through the Home Energy Rebate Program as of September 30, 2011. The focus of this report is how well the Home Energy Rebate Program has reached its intended outcome to date, with attention to the outcomes in Alaska's 40 House Districts.

Home Energy Rebate Program

AHFC's Home Energy Rebate Program assists homeowners in completing energy efficiency improvements on their homes through a rebate of eligible retrofit costs, up to $10,000. In 2008, AHFC successfully implemented the rebate program fewer than five weeks after Governor Palin signed SB 289 into law. This feat was recognized in a 2010 report by the American Council for an Energy-Efficiency Economy who identified the rapid deployment of the program as a major success. [24]

To be eligible for the Home Energy Rebate Program a person must be the year round occupant of the home – there are no income requirements or limitations. Upon enrolling in the program, homeowners are placed on a waitlist to receive an initial energy rating, known as the "As-Is" rating. The "As-Is," or pre-improvement energy rating generates an Energy Efficiency Improvement Options Report that contains an estimate of a homeowner's current annual energy costs and projected savings. Homeowners use this information to evaluate what improvements will help them move up the star rating scale, save on energy, and qualify for a rebate.

[24] Retrieved on January 4, 2011: http://www.aceee.org/research-report/e106

Based on the recommendations from the As-Is rating, the homeowner selects and completes energy efficiency upgrades such as installing a new heating system, caulking and sealing the home to reduce air leakage, insulating crawlspaces and attics, repairing or replacing inefficient or leaky windows and doors, and so on. Following completion of the home retrofit work, the homeowner has a "Post" energy rating to assess the level of energy improvements made. The homeowner has 18 months from the As-Is rating to complete the work and submit the Post rating.

The amount of rebate for which a homeowner is eligible is based on the difference between the As-Is and Post ratings. AHFC uses a 5-star rating scale to reflect the energy efficiency of a home; each half star improvement in the 5-star rating scale is equal to one step such that a house going from a 3-star to a 3-star plus would be moving one step. Table 1 displays the maximum rebate possible for each successful energy efficiency retrofit step a homeowner achieves.

Table 1: Maximum possible rebate per step

One Step	Up to $4,000
Two Steps	Up to $5,500
Three Steps	Up to $7,000
Four Steps	Up to $8,500
Five Steps	Up to $10,000

The Home Energy Rebate Program is structured so that homeowners must pay for all retrofit costs up front and apply for rebates after completion. AHFC will rebate program participants up to $325 for the cost of the As-Is rating and up to $175 for the cost of the Post rating. Program participants receive the initial $325 rebate after completing the As-Is rating and submitting paperwork to AHFC. Once the homeowner has submitted his or her paperwork applying for the As-Is rating rebate, AHFC encumbers the maximum rebate that the homeowner is eligible to receive, up to $10,000. This allows AHFC to ensure it will have the necessary funds to pay homeowners upon completion of their work. Participants then perform the retrofits and request a Post inspection. The Post inspection documents the improvements completed and the energy efficiencies achieved. Once this is completed, the homeowner submits their final paperwork consisting of a completed Post-Improvement Rating Reimbursement and Rebate Application and associated receipts. Whether a person completes the work him/herself or hires a professional, AHFC will rebate only costs that are incurred and documented with receipts from suppliers, contractors, etc. for allowable costs.[25]

SB 289 bill sponsors said they hoped to generate nearly as much private investments in home retrofits as were refunded through rebates; or, $75-100 million investments by the homeowners to match the $100 million outlay of state funds.[26] Results based on submitted homeowner receipts through

[25] Participating homeowners are required to use licensed and bonded contractors, obtain necessary permits and adhere to all local regulations and laws.

[26] Alaska State Senate Finance Committee testimony (2008, March 12). Retrieved on January 17, 2012: www.legis.state.ak.us/pdf/25/M/SFIN2008-03-121457.PDF

September 30, 2011, indicated that on average homeowners invested an average of $4,447 for every dollar of the State's $6,516 investment (through rebate); it is unknown how much additional investment was made that was not eligible for rebate. This amounts to a homeowner match of a documented 66% of the state's investment.

Alaska Weatherization Assistance Program

The Alaska Weatherization Assistance Program provides home weatherization services to households (homes, rentals, and multifamily dwellings) based on income eligibility. The Weatherization Assistance Program has been in existence for nearly 30 years. The program is funded through the Department of Energy and the State. Services are provided at no cost to qualified applicants by designated Weatherization agencies and housing authorities. The passage of SB 289 in 2008 expanded the federal Weatherization Assistance Program's income eligibility requirements in Alaska from households earning up to 60% of median income to households earning up to 100% of median income.[27] However, the program continues to prioritize households with less than 60% of area median income, households with elderly, young children, or people with disabilities. AHFC projected that the expansion of the Weatherization Assistance Program eligibility guidelines and funding would help 17,000 households.[28]

Similar to the Home Energy Rebate Program As-Is rating, the Weatherization assessment determines what energy efficiency measures are most cost effective to apply to the home. Federal program guidelines stipulate that the Weatherization Assistance Program must address health and safety issues along with, and in many cases, prior to energy efficiency upgrades.[29] Due to these program guidelines, in particular issues of health and safety, weatherization service providers are often unable to do some of the more costly measures that individual homeowners in the Home Energy Rebate Program frequently choose, such as complete replacement of a heating system. For more information, read the "Weatherization Assistance Program Outcomes."

Home Energy Rebate Program Outcomes

Participation and Completion Rates

As of September 30, 2011,[30] 27,781 households started the program by submitting an application and completed As-Is rating to AHFC; 16,469 completed the retrofit and submitted their Post rating, 3,034 households were still in the process of retrofitting their homes, and 8,241 had not completed their Post rating within the required 18-month timeframe.[31] Of people who start the program, approximately

[27] For information on income limits go to http://www.ahfc.us/energy/weatherization_program.cfm.
[28] Senate Labor and Commerce Committee testimony on March 4, 2008 (SL&C2008-03-041332.PDF).
[29] Weatherization Assistance Program mission, as stated on the Weatherization Assistance Program Technical Assistance Center website http://www.waptac.org
[30] These figures were drawn from the Alaska Retrofit Information System and Energy Rebate Program Database on September 30, 2011.
[31] Preliminary findings from surveys conducted by Information Insights for AHFC suggest that the main reasons people did not complete the program after starting are: 1) Money (45%), 2) Home rated too high (22%), and 3) Disagree with the rating

66% complete it within the allotted 18-months. On average, participants take 12.7 months between having their As-Is and Post ratings completed.

Figure 2 charts the number of application starts and completions from program launch through September 30, 2011. Trends in the starts and completions remained fairly steady through fall 2011. At the height of the program, close to 1,500 new applications were initiated monthly. In December 2009, all program funds were encumbered. As people completed the program and received their rebate, the difference between their actual rebate amount and the maximum possible rebate was rolled back into the program, making it possible for new households to start the process. This resulted in people waiting an average of eight months for an As-Is rating dispatch and a drastic reduction in new applications (see Figure 2). In July 2011, AHFC received additional funding ($37.5 million) and began dispatching up to 125 houses to raters a week. The number of As-Is ratings has been fairly flat for the past eighteen months, with the number of completed applications dropping, reflecting the significant drop in available funding eighteen months ago.

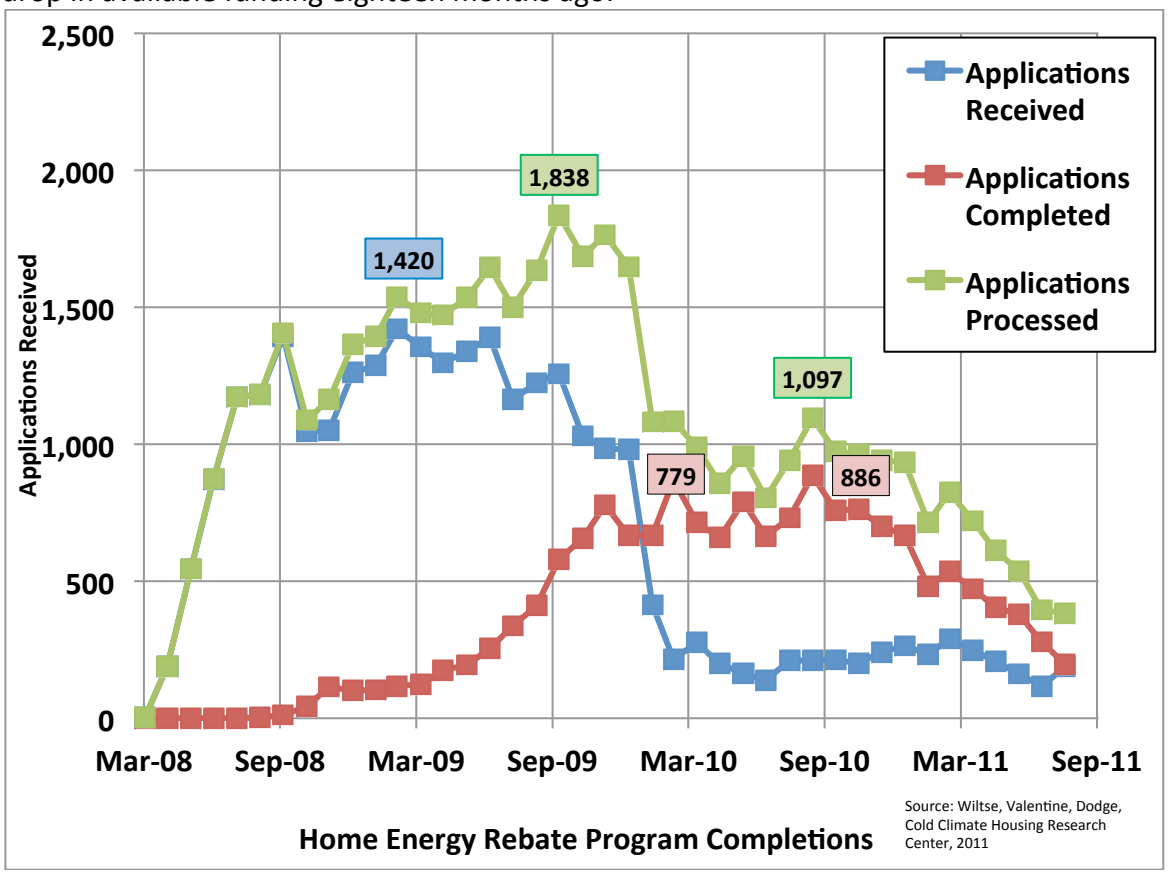


Figure 2. Trend Applications vs. Post ratings per month, beginning of Home Energy Rebate Program through Sept. 2011.

(18.5%). As AHFC conducts further research into this question, more precise answers and information will be available on which to base potential program and/or policy change recommendations in order to increase the completion rate.

As long as Home Energy Rebate Program funds are fully encumbered, the number of new application starts and completions per month can be predicted due to the consistent completion rate and rebate amount. Depending on the amount of ongoing funding for the program, the number of homes entering and completing the program will rise or fall on a somewhat predictable monthly basis. Based on a continued average rebate of $6,516, a new $20 million investment in the Home Energy Rebate Program will result in an estimated 400 new homes entering the program each month over a 12-month period. Funding at this level through 2020 would help approximately 23,760 more home owners complete the program at an estimated 33% energy savings.

Table 2 displays Home Energy Rebate Program completion data by House District as of September 30, 2011. The "completion rate" is based on the number of households that have submitted an application by March 31, 2010 and thus had 18-months to complete their retrofit and apply for a rebate. Using this definition, the average number of Home Energy Rebate Program applications per House District was 694, and the median was 670; an average of 412 homeowners completed their retrofit, with a median of 404.

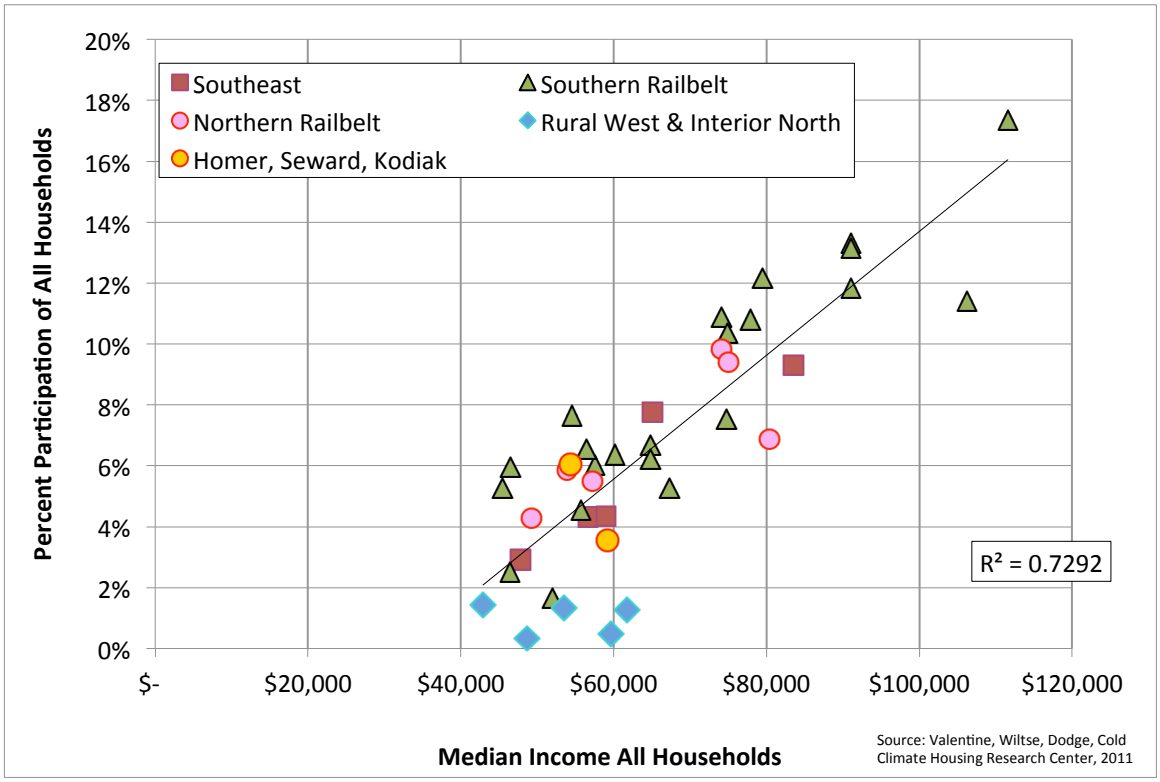
The districts with the greatest number of homeowners completing the program are all from Urban Railbelt Districts, with eight out of the top 10 in Anchorage, and two in Fairbanks (District 7 & 8). With the exception of Juneau, the balance of the communities that are at or above average for completion numbers are Urban Railbelt communities. Anchorage also had 9 of the top 10 completion rates with Juneau's District 3 also making the list.

Table 2: Home Energy Rebate Program Application Status, September 30, 2011, by House District

House District	Applications Received	Applications Expired	Applications in Process	% Applications Completed	Location
1	469	139	51	64%	Ketchikan
2	455	125	66	65%	Sitka/Wrangell/Petersburg
3	770	193	76	71%	Juneau Downtown/Douglas
4	845	225	97	68%	Juneau Mendenhall Valley
5	298	97	30	62%	Cordova/SE Islands
6	178	91	12	43%	Interior Villages
7	1,134	393	88	60%	Farmers Loop/Steese Highway
8	1,035	373	59	60%	Denali/University
9	686	230	39	62%	Fairbanks City
10	376	106	27	67%	Ft. Wainwright
11	798	302	67	57%	North Pole
12	501	185	45	58%	Richardson & Glenn Highways
13	803	259	82	62%	Greater Palmer
14	795	247	80	63%	Greater Wasilla
15	515	197	56	55%	Rural Mat-Su
16	1,003	297	102	65%	Chugiak/South Mat-Su
17	1,149	236	17	75%	Eagle River
18	137	36	15	66%	Ft. Richardson & Elmendorf AFB
19	654	178	78	67%	Muldoon
20	281	70	56	67%	Mountain View/Wonder Park
21	1,165	277	146	70%	Baxter Bog
22	651	131	100	74%	University/Airport Heights
23	643	168	64	68%	Anchorage Downtown/Rogers Park
24	735	177	88	70%	Anchorage Midtown/Taku
25	576	160	61	66%	East Spenard
26	1,124	258	136	72%	Turnagain/Inlet View
27	1,112	289	154	68%	Sand Lake
28	1,374	349	188	69%	Bayshore/Klatt
29	655	190	86	63%	Campbell/Independence Park
30	1,158	272	148	71%	Lore/Abbott
31	1,515	354	176	72%	Huffman /Ocean View
32	1,286	363	155	66%	Chugach State Park
33	924	256	89	67%	Kenai/Soldotna
34	606	180	58	65%	Rural Kenai
35	719	270	55	56%	Homer/Seward
36	347	139	28	54%	Kodiak
37	98	54	8	40%	Bristol Bay/Aleutians
38	104	42	9	54%	Bethel
39	47	27	6	32%	Bering Straits
40	60	34	6	33%	Arctic

Source: Alaska Retrofit Information System, Home Energy Rebate Program database, October 21, 2011; Wiltse, Valentine, Dodge, 2011.

Figure 3: Percent All Households Participating in Rebate Program vs. Median Household Income



[32]

Figure 3 plots the relationship between median family income by House District for all households and the number of retrofits completed. This graph visually approximates the relationship between a district's median household income and participation in the Home Energy Rebate Program. As can be seen, there is a strong linear relationship between income and program participation. Also evident is that there is little relationship between income and participation in rural areas, represented by the blue diamonds.

[32] R^2 is a Coefficient of Determination, which is a statistical method that explains how much of the variability of a factor can be caused or explained by its relationships to another factor.

Figure 4: Owner Occupied Participation vs. Median Owner Occupied Household Income

[33]

Figure 4 displays the close relationship between Home Energy Rebate Program participation as a percentage of all owner occupied House District households and owner occupied Area Median Household Income by House District. However, the Rural West & Interior North participation is quite low, regardless of income in the house district.

The Home Energy Rebate Program is aimed at home owners that are not eligible to participate in the Weatherization Assistance Program, which has income eligibility constraints (maximum of 100% Area Median Income), therefore, it is not surprising that house districts with higher area median income also have a higher participation in the Home Energy Rebate Program. Of further note, participating homeowners must have access to up to $10,000 to finance their retrofit. This means that people that are not eligible for the Weatherization program, because they earn more than 100% Area Median Income, but cannot afford to finance the up-front retrofit costs, nor the $4,500 investment in home retrofits that are not reimbursed, are probably not participating in either program.

[33] R^2 is a Coefficient of Determination, which is a statistical method that explains how much of the variability of a factor can be caused or explained by its relationships to another factor.

Reinforcing the importance of household income and availability of resources to invest in home energy retrofits, an ongoing survey of Alaskans who enrolled in the Home Energy Rebate Program but did not complete it found that 46% of respondents indicated that money was the reason they did not complete the program after starting it. Even with these challenges, AHFC has succeeded in helping nearly 16,500 Alaska homeowners achieve approximately 33% energy savings.

Another important cost factor which could be impacting off-road program participation is the cost of construction. The rural districts with the lowest participation in the Home Energy Rebate Program are also the regions of the state with the highest construction costs.[34] There appear to be a significant number of people living in rural, isolated communities with higher-than-median income who are not accessing the Home Energy Rebate Program. The high construction costs in rural and isolated communities may make it difficult for families above median income to afford home retrofit work.

Other possible barriers to rural household participation in the Home Energy Rebate program may include availability of raters and contractors, shorter building season, and rigid shipping schedules (e.g. barge schedules). Further, the low rate of people signing up for and receiving an As-Is rating suggests that there may be barriers to even starting the process, prior to confronting the cost of completing recommended improvements. Such barriers could include: how well the program is promoted, lack of understanding or knowledge of how the program works, and perceptions that the program is urban oriented. AHFC has worked to understand and resolve these barriers where possible (e.g. creating a roving rater program).

Future research to better understand the complex effect of income, construction costs, workforce availability, homeownership, and other factors of program participation is recommended. This research should pay close attention to two areas of concern: 1) the potential for a gap between people eligible for Weatherization Assistance Program and those who can afford to participate in the Home Energy Rebate Program; and, 2) identifying the perceptions and barriers preventing rural homeowners with above-median income from accessing the Home Energy Rebate Program.

Economic & Energy Outcomes

The economic and energy outcomes reported herein are based upon completed ratings from the beginning of the Home Energy Rebate Program (April 2008) through September 30, 2011. Energy savings are calculated based upon blower door tests conducted on the home by certified energy raters and physical inspection and measurement of the house. This information about the house is entered into AKWarm; an AHFC developed building energy modeling software system. AKWarm models the expected energy consumption based on the home's construction, features, appliances, and results from the rater's test. A number of studies have been conducted to test the accuracy of AKWarm's residential

[34] The 2009 AHFC Alaska Housing Assessment prepared by CCHRC and Information Insights contains data on construction costs from a survey of 11 communities. Retrieved on January 17, 2012: http://cchrc.org/docs/reports/TR_2009_02_2009_AK_Housing_Assessment_Final.pdf

energy rating model, and each has concluded that AKWarm produces an accurate estimate of annual home energy.[35]

Using data from AHFC's Home Energy Rebate Program database, it is estimated that AHFC has spent close to $111 million in rebates for close to 16,500 completions, with a statewide average rebate of $6,516, and an average homeowner investment of $4,447. The total estimated energy cost savings generated by the program is $21.7 million per year (see Table 3). The average homeowner investment after receiving the rebate, therefore, is $4,447, with an estimated annual energy costs savings of $1,297. Homeowners have reported paying an average total of $10,963 for energy upgrades during the program, with $6,516 of that rebated. Thus, the Home Energy Rebate Program has reduced the payback period on homeowners' investments from 8.5 years to 3.4 years. This program represents a significant influx of money into the broader Alaska economy that would otherwise have gone to pay for energy.

Table 3: Home Energy Rebate Program Economic Indicators; April 2008-September 31, 2011

Average Rebate Amount	$6,516
Total Estimated Program Funds Expended*	$110,974,085
Total Estimated Energy Cost Savings to Date	$21,726,196
Simple Payback	5.1 years

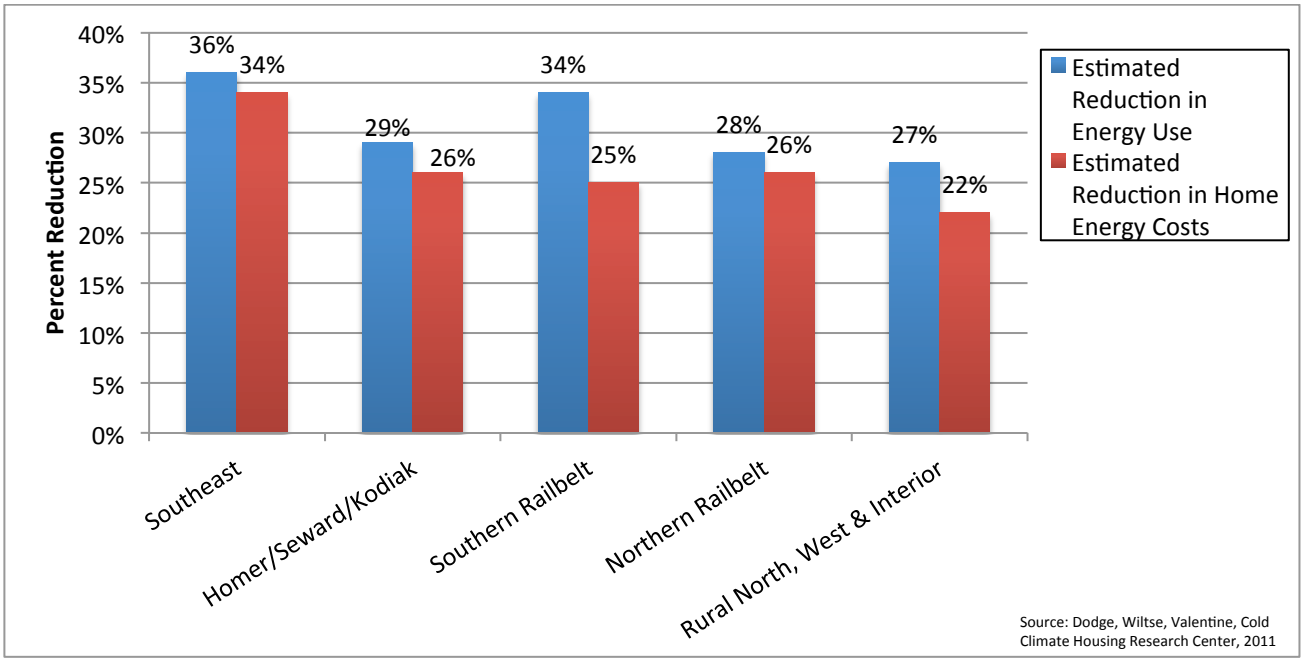
Source: Alaska Retrofit Information System, Home Energy Rebate Program Database, October 21, 2011; Wiltse, Valentine, Dodge, 2011.

* Estimated program funds are based on multiplying the average rebate amount plus the $500 for rating rebates ($325 for As-Is +$175 for Post) by the total number of completed records as of September 30, 2011. This table does not represent the actual AHFC expenses to date but estimates the payback associated with the records used to compute the outcomes reported here.

35 A number of studies were submitted to AHFC and the EPA in 1998 documenting AKWarm's performance, including: D. Meisegeier, ICF, Inc., "BEES / Energy Star Home comparison analysis," May 27, 1997; Meisegeier, D., ICF, Inc., "AKWarm / Energy Star Home calibration analysis," March 5, 1998; and D.N. Wortman, P.E., Boulder Energy Associates, "AKWarm Evaluation Study," February 12, 1997; G. Salas, Simonson Management Services, (October 28, 2011) AKWarm – Equivalent Calculation [Letter, to Department of Energy]. MD Highland; Alaska Housing Finance Corporation has requested a legislative bill (HB 197) that recognizes AHFC as the authorizing agency to approve home energy rating systems (HERS) utilized in Alaska.

As seen in Figure 5, the percent reduction in energy consumption is typically larger than energy cost savings. This is because homes utilize more than one fuel type and savings are across fuel types. Anchorage is the most dramatic example of this. The majority of Anchorage/MatSu residents use natural gas, a less expensive heating fuel, when they reduced their energy use by 34%, they only reduced their energy costs by 29%. This is because they did not reduce their consumption of the more expensive energy (electricity) by the same proportion that they reduced their space heating. In the other areas of the state, the estimated energy use reduction is within two to five percent of the estimated energy cost savings. For example, Southeast reduced its energy use by an estimated 36% and reduced energy costs by 34%.

Figure 5: Estimated Regional Reduction in Energy Use and Energy Costs



The estimated cost savings generated by AKWarm are based on the modeled energy savings and current information on energy costs around Alaska. The actual cost savings are subject to variation due to energy use behavior of individual homeowners. If people use the energy in their homes in the same way they did prior to entering the program, then the cost savings estimates will be accurate, though varying with the rise and fall of energy costs. However, people's energy behavior may change as their homes become more efficient; for example, a homeowner switching to low-energy light bulbs may keep their lights on more, a change in behavior not anticipated by the modeling software. A person may also choose to keep his/her home warmer instead of using energy cost savings for other living expenses.

While economic outcomes from the Home Energy Rebate Program are critical to assessing the program's impact in reducing financial stress associated with home energy costs, the program also

generates energy and environmental outcomes with important social ramifications. For example, BTUs saved today help extend the Cook Inlet gas supply tomorrow. Reduction in CO_2 emissions is a good indicator overall of the pollution reduction and represents contributions from the program in meeting air quality standards as regulated by the Federal Environmental Protection Agency. Electricity savings can reduce the need of Alaskans for expanded electrical generation and help limit the need for future power plants.

Table 4: Home Energy Rebate Program Statewide Annual Outcome Estimates to Date

	April 2008 - September 30, 2011
Total Energy Savings	1.7 Trillion BTUS
Total CO2 Emissions Reduced	101,906 net tons
Average home energy savings	33.3%
Average home cost savings	$1,297/year
Average Home Age	33.6 years
As is Rating Points/Stars	65.9/2 Star +
Post Rating Points/Stars	81.1/4 Star
Average change in rating points	15.2

Source: Alaska Retrofit Information System, Home Energy Rebate Program database, October 21, 2011; Wiltse, Valentine, Dodge, 2011.

As of September 30, 2011, the Home Energy Rebate Program has produced a total modeled energy savings of 1.7 trillion BTUs, a total reduction in CO2 emissions of 101,906 tons per year, and an estimated savings of 9.9 million kWh every year (see Table 4). The roughly 1.7 trillion BTUs saved is equivalent to almost 12.1 million gallons of #1 heating oil or 16.5 million therms of natural gas.

The economic impact of the retrofit work is difficult to calculate, given that we do not have information about what was spent on materials versus labor when doing the retrofits. However, we can calculate the impact of 16,500 Alaska families having an additional $1,297 in their pockets to spend on something other than energy. At a minimum this makes $21.7 million available for Alaska families to spend on something other than energy. If we assume a 1.5 multiplier it is $32.6 million in direct and indirect economic impact.[36]

[36] A multiplier is used to estimate "the total impact that can be expected from a change in a given economic activity." (University of Arkansas Division of Agriculture, FSCED6, Wayne P. Miller. Accessed March 28, 2012: *www.uaex.edu/Other_Areas/publications/PDF/**FSCED6**.pdf.*

Regional Program Outcomes

For purposes of this report, the state has been divided into five separate regions based on geography and similarity of energy economies (see Figure 6). The "Southeast" region includes House Districts 1 through 5 and is characterized by a wet climate, use of oil and electric for space heating, and hydroelectric power. The "Southern Railbelt" includes the Matanuska-Susitna valley (MatSu), Anchorage, and Kenai Districts that have access to natural gas and generally lower energy costs. "Homer, Seward, and Kodiak" are broken out as their own region as they do not have access to natural gas and rely heavily on oil, hydropower, and wind, and their energy economies and climates are similar. The "Northern Railbelt" includes Fairbanks, Denali, and District 12 that extends from North Pole to Palmer and is characterized by a dominance of oil as the primary fuel source, coal-fired electricity, and connectivity to the road system. The "Rural North, West, and Interior" region includes rural districts of southwest, northern, and interior Alaska, and is characterized by lack of road access, harsh climates, elevated energy and construction costs, and lower average incomes. Table 5 displays Home Energy Rebate Program outcome by region.

Figure 6: Regions Based on Geography and Energy Economies

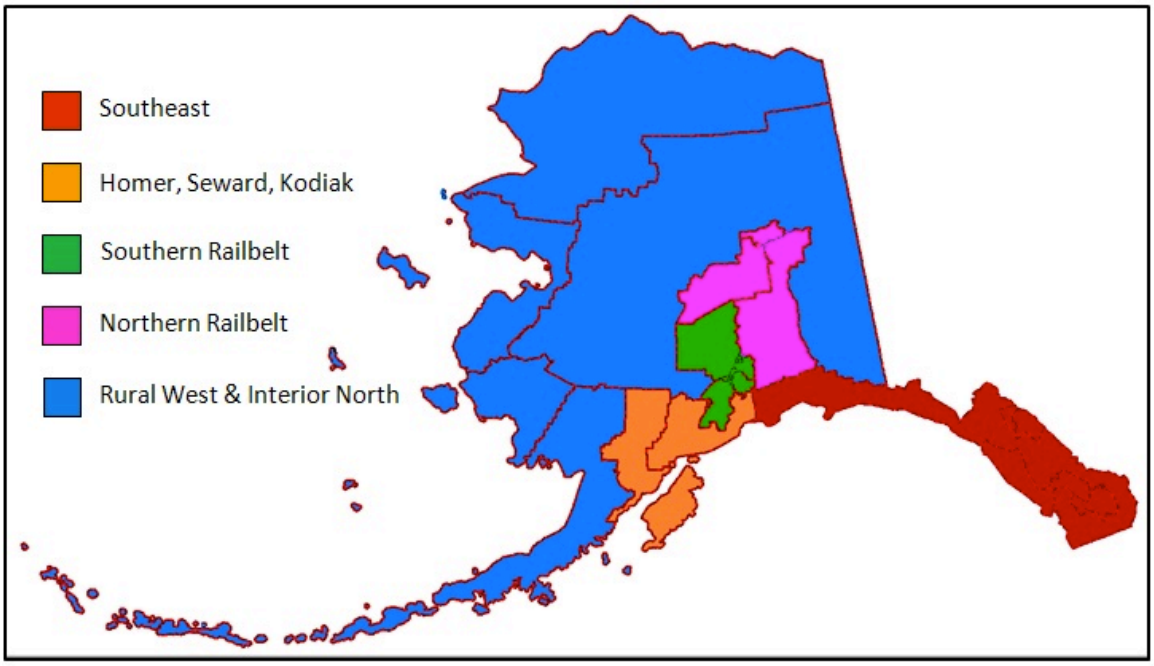


Table 5: Home Energy Rebate Program Regional Annual Outcome Estimates to Date

	Southeast (n=1,704)	Homer/ Seward/ Kodiak (n=551)	Southern Railbelt (n=11,471)	Northern Railbelt (n=2,550)	Rural North, West, and Interior (n=193)
Total Energy Savings (million BTU)	141,671	34,983	1,242,017	217,836	13,279
Total Cost Savings (millions of dollars)	$4.0	$1.0	$10.0	$6.3	$0.4
Total CO2 Emissions Reduced (tons)	8,683	2,487	71,191	18,589	956
Average reduction home energy use	36%	29%	34%	28%	27%
Average reduction in home energy costs	34%	26%	27%	26%	22%
Average cost savings per home ($)	$2,336	$1,727	$877	$2,454	$2,263
Average owner-paid costs, pre-rebate ($)	$11,421	$10,822	$10,887	$11,101	$10,050
Average rebate per home ($)	$6,590	$6,241	$6,662	$5,942	$5,592
Average payback per home (state funds)	2.8	3.6	7.6	2.4	2.5
Average payback per home (homeowner funds)	2.1	2.7	4.8	2.1	2.0
Average As-Is rating points	54.3	66.2	66.8	69.3	66.5
Average Post rating points	74.8	81.1	82.0	81.3	79.9

Source: Alaska Retrofit Information System, Home Energy Rebate Program database, October 21, 2011; Wiltse, Valentine, Dodge, 2011.

When comparing the results achieved as a result of the Home Energy Rebate program in the regions, one notes that the Southeast and Southern Railbelt regions have higher average estimated home energy use reductions (36% and 34% respectively) compared to the Northern Railbelt, Homer/Seward/Kodiak and Rural North, West, and Interior regions (28%, 29%, and 27% respectively). Homes in the Northern Railbelt region have the greatest estimated absolute cost savings with an average annual savings of $2,454, followed by Southeast with an average annual savings of $2,336, and the Rural North, West and Interior with average annual savings of $2,263. Homes in Southeast have the lowest average As-Is energy rating by 12-15 points compared to the other four regions, but are within 5-7 points on average after the Post rating.

Home Improvements

Figure 7 below compares the percentage of savings from As-Is to Post rating on six different factors, while Figure 8 displays the As-Is, Post, change, and percent change of three usage factors. Of the various housing components analyzed here, the greatest change was in the efficiency of heating systems. In addition to the expected improvements in appliance efficiency, the retrofits targeted additional reductions in jacket loss, standby loss, and distribution losses, thereby realizing an overall reduction in heating system loss of 64%. The various building shell components (ceilings, floors, walls/doors, and windows) averaged 22% to 34% in reduced heat loss. Improvements to the building shell components include both the addition of more insulation and air tightening measures. Shell component retrofits tended to emphasize ceilings over floors, which is reflected in greater reductions in ceiling losses vs. those found in floors. Future evaluation of the Home Energy Rebate Program should look at characterizing actual improvements made in greater detail.

Figure 7: Estimated Percent Heat Loss Reduction by Category Realized from Energy Retrofits

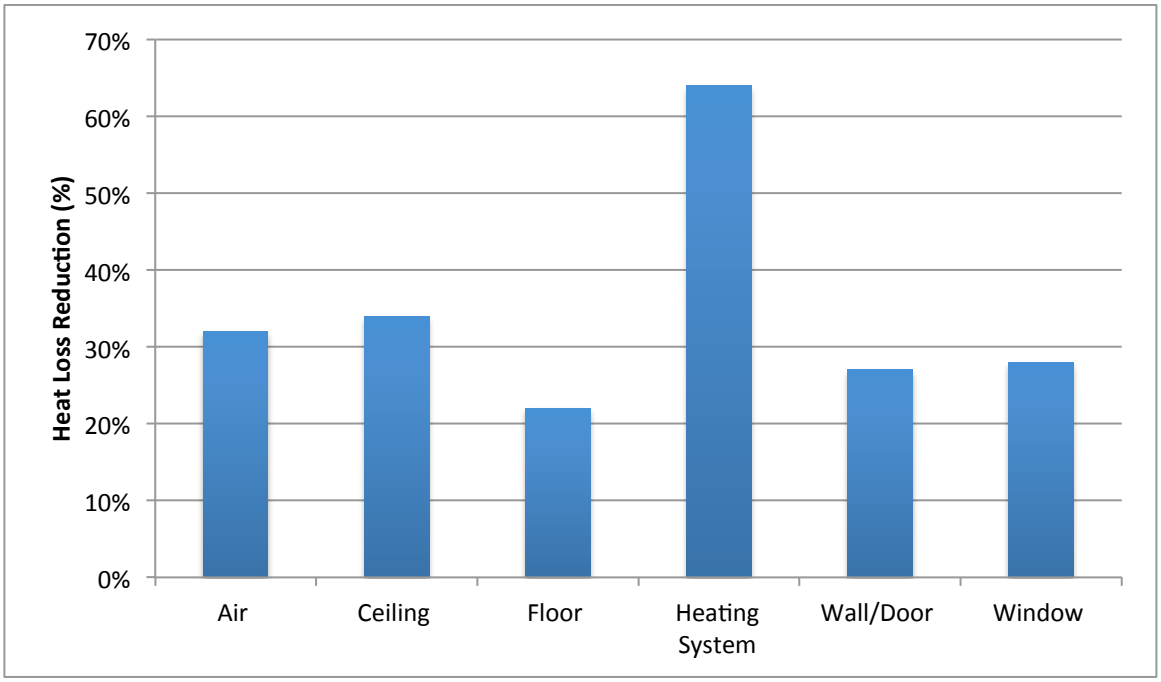
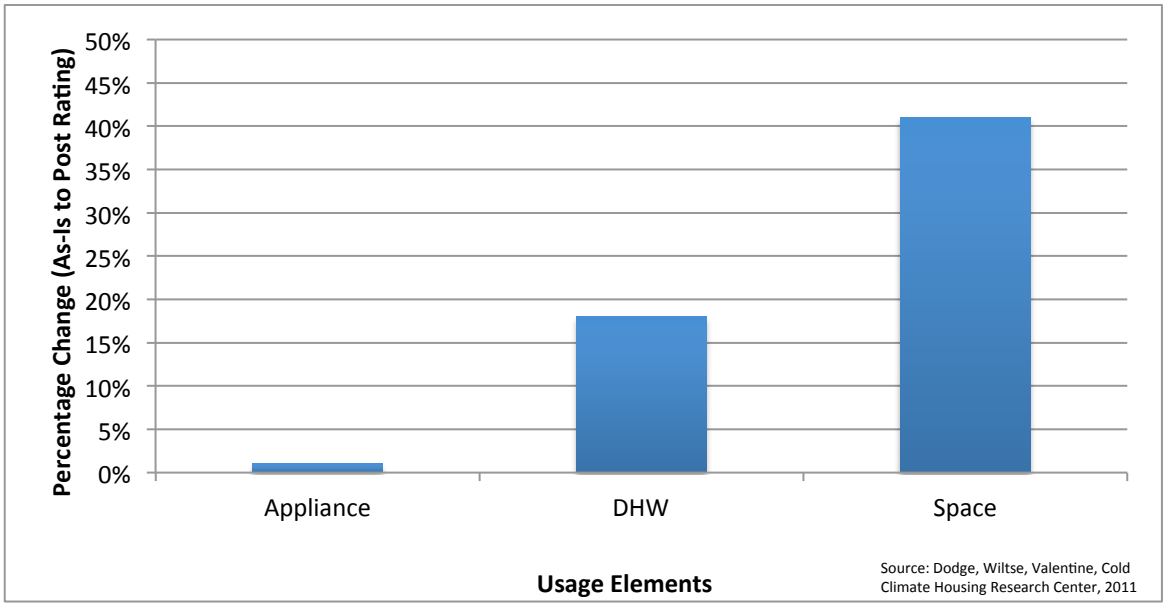


Figure 8 also reflects the changes in energy use between As-Is and Post ratings. The percentage of change in efficiency is greatest for space heating (41% more efficient) compared to domestic hot water (DHW) (18% more efficient), and appliances (three percent more efficient). This demonstrates the relative importance of home heating in determining residential energy usage in cold climates.

Figure 8: Percentage of Change in Energy Use



Other impacts

The impact of the Home Energy Rebate Program goes beyond the direct outcome reported above. As a result of home energy efficiency improvements homeowners and communities experience many additional benefits. While this report does not document them, national research indicates that home energy efficiency improvements are linked to positive public health outcomes such as improved indoor air quality[37] and benefits associated with utility ratepayers, households, and the community.[38] Further, ratepayers benefit from reduced rate subsidies, lower bad-debt write-off, fewer energy bills in arrears, and fewer disconnects due to lack of payment.[39] Additionally, homeowner benefits include water and sewer savings, increased property value, improved home stability, and reduced involuntary moves.[40] Finally, national research shows that societal benefits include improved outdoor air quality, reduced environmental impacts from power plants, and broad economic impacts from job growth, increases in personal income, and increased property tax revenue.[41]

[37] D. Jacobs, T. Kelly, & J. Sobolewski (2007). Linking public health, housing, and indoor environmental policy: Successes and challenges at local and federal agencies in the United States. *Environmental Health Perspectives*, 115(6), 976-982.
[38] M. Schweitzer & B. Tonn (2006). Non-energy benefits of the US Weatherization Assistance Program: A summary of their scope and magnitude. *Applied Energy*, 76, 321-335.
[39] Ibid., p. 323-326.
[40] Ibid., p. 327-329.
[41] Ibid., p. 329-332.

Home energy efficiency impacts a home's operating costs, longevity, and the health of its occupants, and therefore should improve a home's salability; however this is only beginning to have an impact on home salability in Alaska.[42] Increased home stability, resulting from fewer people moving due to the cost of energy, has significant implications for high school completion, health and safety, and community economic stability. Future research into the impacts of AHFC's Home Energy Rebate Program should better quantify such related and long-term outcomes leading to a better understanding of the full depth and magnitude of program impacts.

Conclusion

The Home Energy Rebate Program has produced significant energy savings for homeowners in Alaska. Increased home energy efficiency translates into significant annual cost savings for homeowners and more money in household budgets. As of September 30, 2011, close to 16,500 Alaska homeowners had completed the Home Energy Rebate program. This represented a state investment of approximately $111 million and homeowner investments of $73 million. These investments resulted in approximately $21.7 million in annual homeowner energy cost savings. Assuming a 1.5 multiplier, these annual energy savings of $21.7 million will result in an estimated annual direct and indirect economic impact of $32.6 million. Total estimated energy savings from the Home Energy Rebate Program is nearing 1.7 trillion BTUs annually, roughly equivalent to 12.1 million gallons of #1 heating oil or 16.5 million therms of natural gas. With current energy costs and average realized home energy improvements, it will take approximately 5.1 years for the amount of saved income generated by the program to exceed the state investment in the program.

Future research and analysis should focus on three core areas: 1) assessing program participation for barriers, gaps, and options to improve access; 2) describing program activity and outcomes in a greater level of detail; and 3) evaluating further impacts of the program. Of critical importance to future studies is assessing how to improve the long-term performance of the program to ensure appropriate and equal access for homes across Alaska's diverse cultural, geographic, economic and climatic regions. Future analysis should also parse the types of retrofit work done within the home, cost of individual home improvement options, and realized paybacks for various energy efficiency options. Similarly, future evaluation should assess how homeowners choose certain energy efficiency improvement options and whether the choices made reflect the best energy improvement results. It should also evaluate other home improvement work that may have been stimulated by the rebate program, such as improvements to home durability, health, comfort, and safety. The analysis should also entail assessment of the factors that contribute to participation, such as income, cost of construction, availability of workforce, ease of participation, cost of energy, and the like. For assessing broader outcomes, research should focus on articulating how the rebate program has contributed across the economic, social, and environmental sectors of Alaska communities.

[42] Personal communications, various bankers, assessors, and appraisers, October – November 2011.

Appendix A: House District Reports

Alaska Housing Finance Corporation

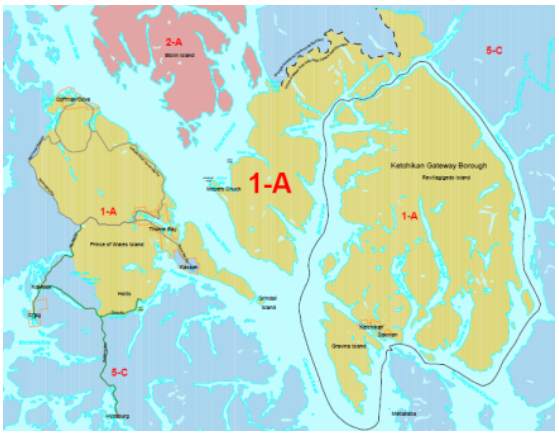
Home Energy Rebate Program Outcomes

House District 1 – Ketchikan

Senate Representative: Bert Stedman (R)
House Representative: Kyle Johansen (R)

Description

House District 1 is located in Southeast Alaska and experiences a maritime climate with moderate winter homeowner cost savings. Primary fuel sources are oil and electricity generated from hydropower.



Home Energy Rebate Program Participation

# of Applications	469
Expired	146
In Process	51
Completed	272
Completion Rate	64%
Avg. Completion Time (mos.)	13.8
Average Home Age	38.6
Total Rebate Funds	$2.0 million
Average Rebate Amount	$6,764

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	25.4 billion BTU
Cost Savings	$739,525
CO2 Reduction	3.6 million LBS

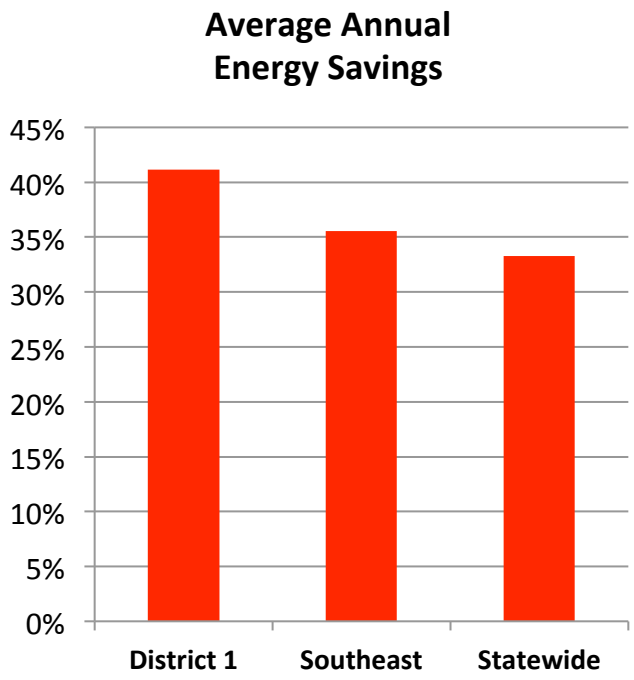
Per Home Averages

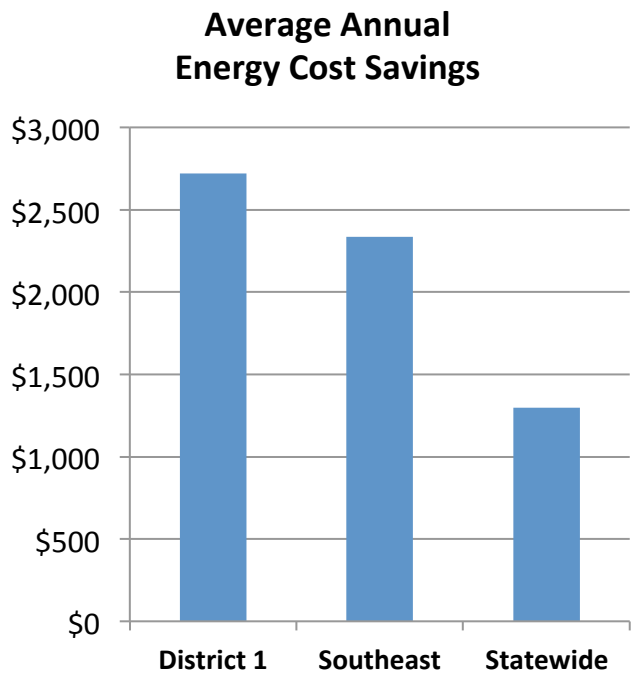
Energy Savings	41%
Cost Savings/home	$2,719

Total estimated BTUs saved in House District 1 are equivalent to 186,534 gallons of #1 heating oil per year.

Of Note for House District 1:

- Annual cost savings from energy efficiency upgrades represent an estimated **$739,525.**
- It is estimated that the state's investment of more than **$2 million will be repaid in 3.2 years** through homeowner cost savings, an annual return of 36%.
- AHFC has awarded **five "5 Star Plus"** new home construction rebates, equating to an additional $127,500 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated:
        - **85% energy reduction**.
        - Yearly cost savings **- $17,800**.
    - **Retrofit Actions:** improved the insulation in the attic and crawlspace; insulated and sealed ducting; upgraded heating system to a smaller, more efficient unit.





Homes in House District 1 have realized higher than average energy and cost savings compared to districts in the Southeast Region and the State. District 1 had the largest average star rating change and the largest percent energy savings in the state. Energy savings are primarily attributed to space heating system upgrades, air tightening, increased insulation and window upgrades. Compared to other districts in the Southeast region, homes in District 1 had lower average energy ratings upon entering the program, by approximately one third of a star, but relatively similar energy performance after completion. This same pattern is true for the entire Southeast region compared to Statewide averages. Possibly due to its dependence on higher-cost fuel oil for space heating, District 1 achieved greater cost savings than the Statewide average.

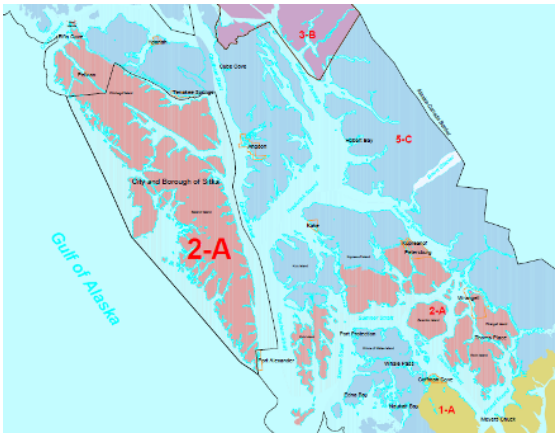
Estimated Yearly Fuel Use Reductions in District 1

Wood Use Reduction	69 cords
Coal Use Reduction	0 tons
Electric Use Reduction	407,239 kWh
Gas Use Reduction	0 therms
Oil 1/Oil 2 Use Reduction	159,780 gals
Propane Use Reduction	3,924 gals

House District 1 realized an estimated annual reduction of 160,000 gallons of fuel oil. Electrical use was reduced by 10% in House District 1.

House District 2 – Sitka/Wrangell/Petersburg

Senate Representative: Bert Stedman (R)
House Representative: Peggy Wilson (R)



Description

House District 2 is located in Southeast Alaska and experiences a maritime climate with moderate winter temperatures. Primary fuel sources are oil and electricity generated from hydropower.

Home Energy Rebate Program Participation

# of Applications	455
Expired	130
In Process	66
Completed	258
Completion Rate	65%
Avg. Completion Time (mos.)	14.0
Average Home Age	42.6
Total Rebate Funds	$1.7 million
Average Rebate Amount	$5,717

Home Energy Rebate Program Outcomes
Estimated Yearly Savings

District Wide Totals

Energy Savings	18.5 billion BTU
Cost Savings	$527,451
CO2 Reduction	2.2 million LBS

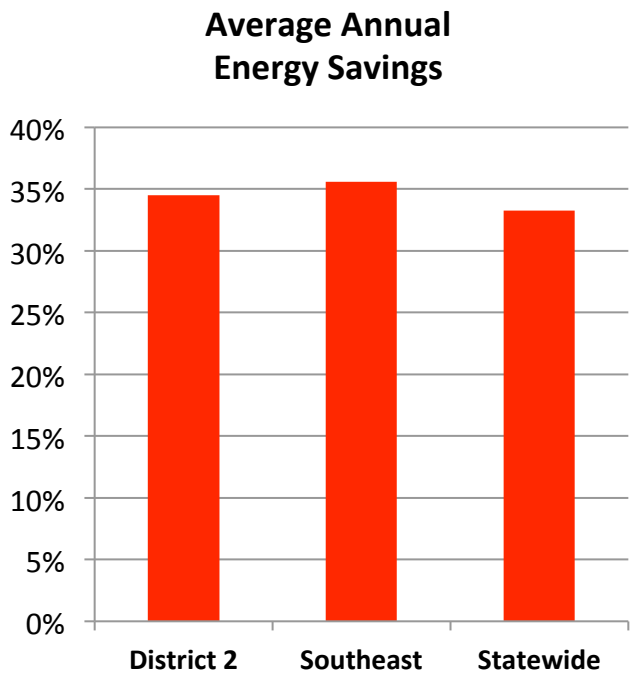
Per Home Averages

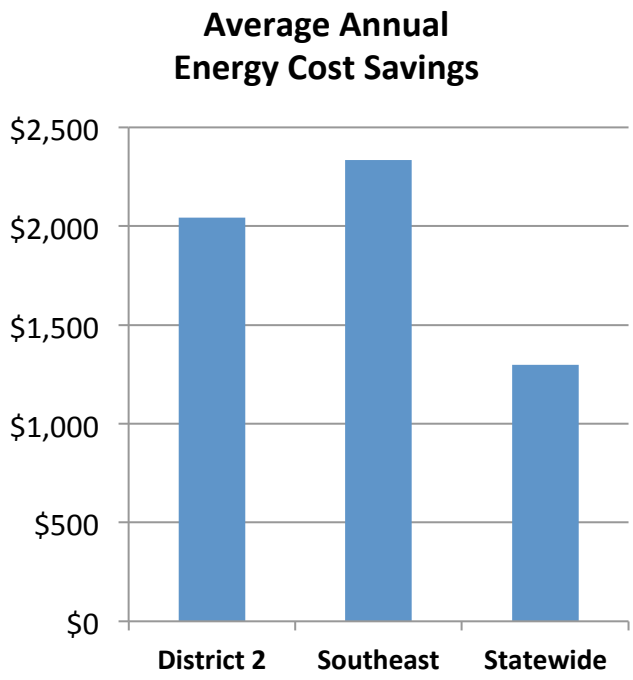
Energy Savings	35%
Cost Savings/home	$2,044

Total estimated BTUs saved in House District 2 are roughly equivalent to 135,754 gallons of #1 heating oil per year.

Of Note for House District 2:

- Annual cost savings from energy efficiency upgrades represent an estimated **$527,451**.
- It is estimated that the state's investment of over **$1.7 million will be repaid in 3.2 years** through homeowner cost savings, an annual return of 32%.
- AHFC has awarded **one "5 Star Plus"** new home construction rebate, equating to an additional $7,500 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated:
        - **67% energy reduction**
        - Yearly cost savings **- $4,130**
    - **Retrofit Actions:** improved the insulation in the floor and ceiling, tightened the structure against air leakage, and installed a ground-source heat pump.





Homes in House District 2 have realized both energy and cost savings greater than the Statewide average but slightly lower than the regional average. Energy savings are primarily attributed to space heating system upgrades, air tightening, increased insulation, and window upgrades. Sitka, Wrangell, and Petersburg all have some of the lowest electricity rates in the state. As a result, electricity is used more commonly and heating oil less commonly in District 2, resulting in slightly lower overall energy costs and average cost savings when compared to other districts in Southeast.

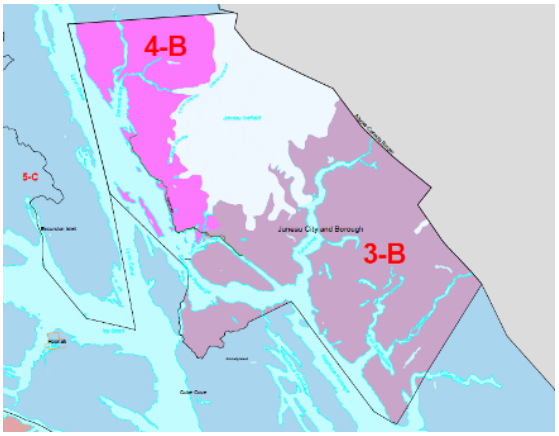
Estimated Yearly Fuel Use Reductions in District 2

Wood Use Reduction	149 cords
Coal Use Reduction	0 tons
Electric Use Reduction	535,550 kWh
Gas Use Reduction	0 therms
Oil 1/Oil 2 Use Reduction	99,974 gals
Propane Use Increase	1,196 gals

House District 2 realized an estimated annual reduction of 100,000 gallons of fuel oil. Electrical use was reduced by 10% in House District 2.

House District 3 – Juneau: Downtown/Douglas

Senate Representative: Dennis Egan (D)
House Representative: Beth Kertula (D)



Description

House District 3 is located in Southeast Alaska and experiences a maritime climate with moderate winter temperatures. Primary fuel sources are oil, electricity generated from hydropower, and firewood.

Home Energy Rebate Program Participation

# of Applications	770
Expired	202
In Process	76
Completed	491
Completion Rate	71%
Avg. Completion Time (mos.)	13.8
Average Home Age	46.4
Total Rebate Funds	$3.2 million
Average Rebate Amount	$5,925

Home Energy Rebate Program Outcomes
Estimated Yearly Savings
District Wide Totals

District Wide Totals	39.7 billion BTU
Cost Savings	$1,116,828
CO2 Reduction	4.7 million LBS

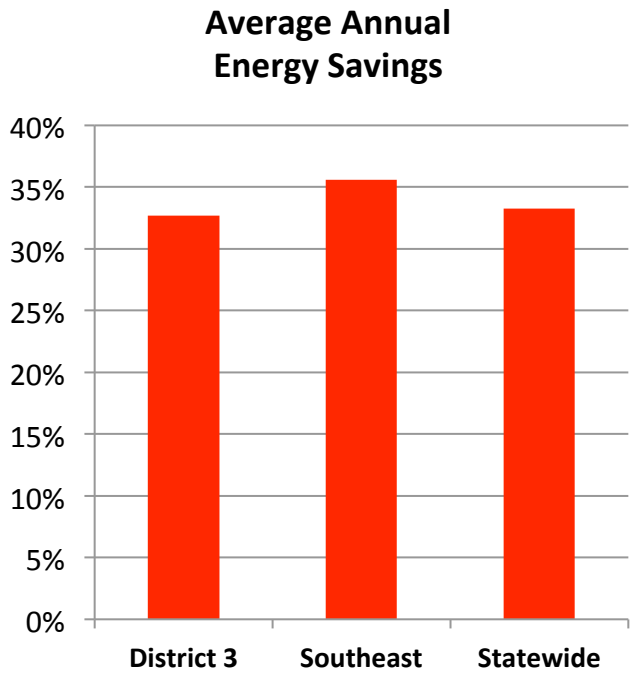
Per Home Averages

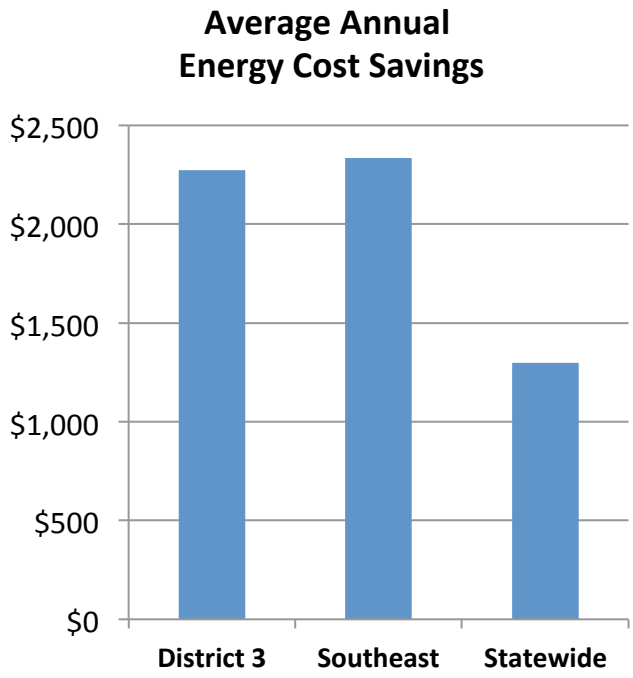
Energy Savings	33%
Cost Savings/home	$2,275

Total estimated BTUs saved in House District 3 are roughly equivalent to 291,763 gallons of #1 heating oil per year.

Of Note for House District 3:

- Annual cost savings from energy efficiency upgrades represent an estimated **$1.1 million**.
- It is estimated that the state's investment of over **$3.2 million will be repaid in just over 2.9 years** through homeowner cost savings, an annual return of 34%.
- AHFC has awarded **four "5 Star Plus"** new home construction rebates, equating to an additional $30,000 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated:
        - **84% energy reduction**
        - Yearly cost savings - **$25,790**
    - **Retrofit Actions:** improved the insulation in walls and upgraded the heating system with a smaller, much more efficient unit.





Homes in House District 3 have realized energy savings that are lower than both the Statewide and regional average. Energy savings are primarily attributed to space heating system upgrades, air tightening, increased insulation, and window upgrades. While Juneau has abundant low-cost hydroelectric power, many people in District 3 still rely on oil for space heating. The high cost of fuel oil is largely responsible for the average cost savings realized by homeowners in this district who participated in the rebate program. Consistent with the regional trend, homes in House District 3 have realized higher cost savings when compared to the Statewide average.

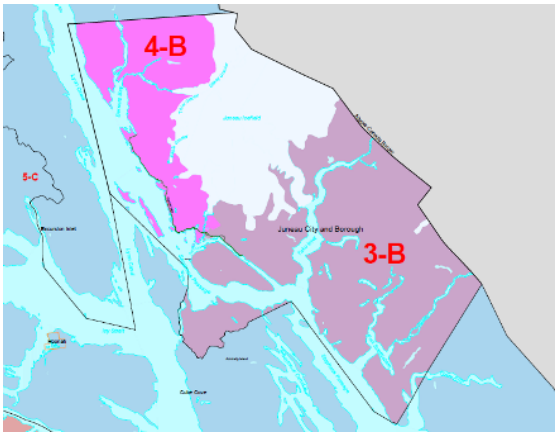
Estimated Yearly Fuel Use Reductions in District 3

Wood Use Reduction	405 cords
Coal Use Reduction	0 tons
Electric Use Reduction	569,898 kWh
Gas Use Reduction	0 therms
Oil 1/Oil 2 Use Reduction	218,053 gals
Propane Use Increase	6,499 gals

House District 3 realized an estimated annual reduction of 218,000 gallons of fuel oil. Electrical use was reduced by 8% in House District 3.

House District 4 – Juneau: Mendenhall Valley

Senate Representative: Dennis Egan (D)
House Representative: Cathy Muñoz (R)



Description

House District 4 is located in Southeast Alaska and experiences a maritime climate with moderate winter temperatures. Primary fuel sources are oil and electricity generated from hydropower.

Home Energy Rebate Program Participation

# of Applications	845
Expired	232
In Process	97
Completed	515
Completion Rate	68%
Avg. Completion Time (mos.)	12.8
Average Home Age	34.2
Total Rebate Funds	$3.5 million
Average Rebate Amount	$6,032

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	41.6 billion BTU
Cost Savings	$1,192,651
CO2 Reduction	4.9 million LBS

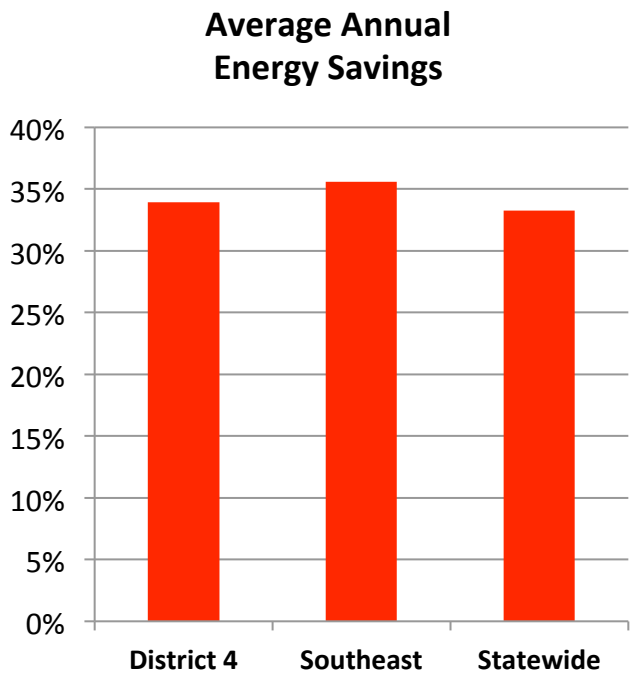
Per Home Averages

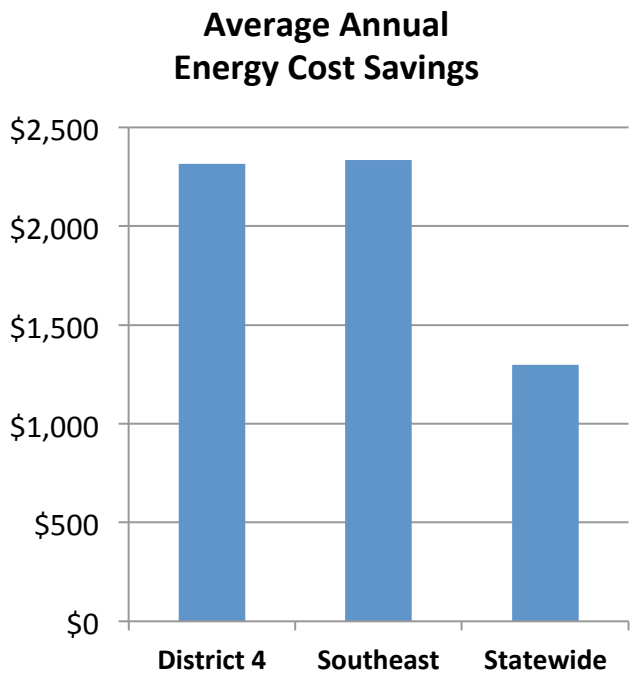
Energy Savings	34%
Cost Savings/home	$2,316

Total estimated BTUs saved in House District 4 are roughly equivalent to 305,836 gallons of #1 heating oil per year.

Of Note for House District 4:

- Annual cost savings from energy efficiency upgrades represent an estimated **$1.2 million**.
- The state's investment of nearly **$3.5 million will be repaid in less than 2.9 years** through homeowner cost savings, an annual return of 34%.
- AHFC has awarded **eighteen "5 Star Plus"** new home construction rebates, equating to an additional $135,000 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated:
        - **54% energy reduction**
        - Yearly cost savings - **$10,214**
    - **Retrofit Actions:** improved the insulation in the floor, ceiling, and walls; tightened the structure against air leakage; and upgraded the heating and domestic hot water system.





Homes in House District 4 have realized energy savings that are on par with the Statewide average and marginally lower than in the Southeast Region. Energy savings are primarily attributed to space heating system upgrades, air tightening, increased insulation, and window upgrades. While Juneau has abundant low-cost hydroelectric power, many people in District 4 still rely on oil for space heating. The high-cost of fuel oil is largely responsible for the costs savings realized by homes in this district that participated in the rebate program. Consistent with the regional trend, homes in House District 4 have realized higher cost savings when compared to the Statewide average. Energy savings are primarily attributed to space heating system upgrades, air tightening, increased insulation, and window upgrades.

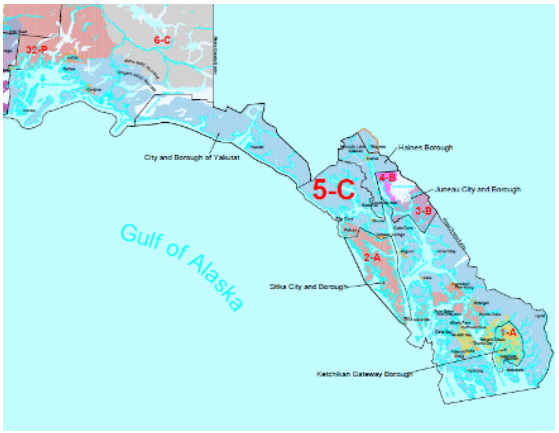
Estimated Yearly Fuel Use Reductions in District 4

Wood Use Reduction	396 cords
Coal Use Reduction	0 tons
Electric Use Reduction	781,698 kWh
Gas Use Reduction	0 therms
Oil 1/Oil 2 Use Reduction	218,152 gals
Propane Use Reduction	8,352 gals

House District 4 realized an estimated annual reduction of 218,000 gallons of fuel oil. Electrical use was reduced by 11% in House District 4.

House District 5 – Cordova/Southeast Islands

Senate Representative: Albert Kookesh (D)
House Representative: William "Bill" Thomas, Jr. (R)



Description

House District 5 is located in Southeast Alaska and experiences a maritime climate with moderate winter temperatures. The primary fuel source is oil.

Home Energy Rebate Program Participation

# of Applications	298
Expired	100
In Process	30
Completed	168
Completion Rate	62%
Avg. Completion Time (mos.)	14.5
Average Home Age	34.9
Total Rebate Funds	$1.2 million
Average Rebate Amount	$6,249

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

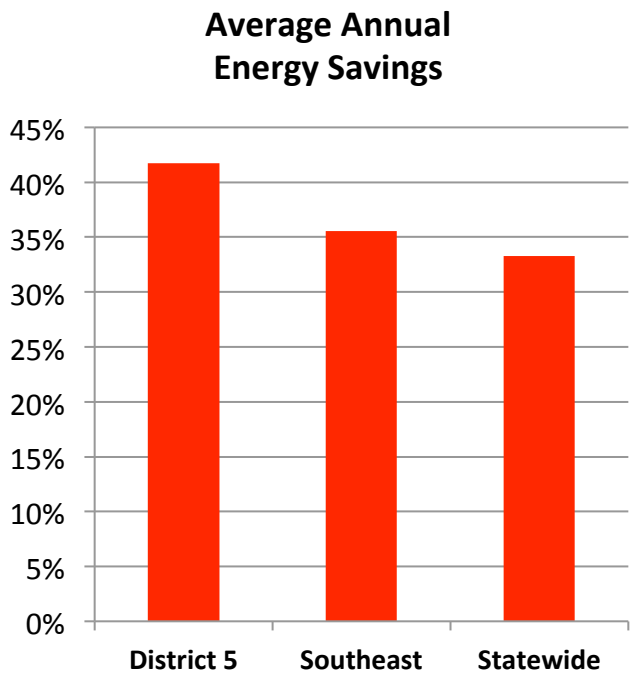
Energy Savings	17.3 billion BTU
Cost Savings	$414,390
CO2 Reduction	2.0 million LBS

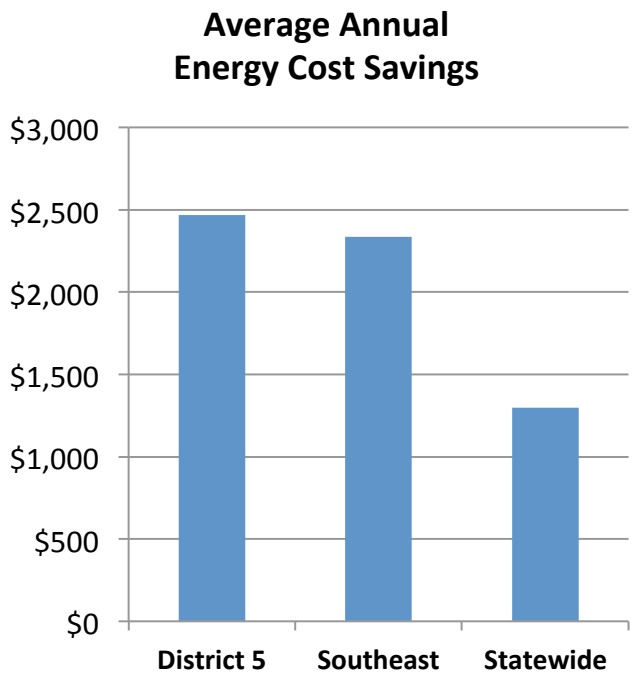
Per Home Averages	
Energy Savings	42%
Cost Savings/home	$2,467

Total estimated BTUs saved in House District 5 are roughly equivalent to 127,281 gallons of #1 heating oil per year.

Of Note for House District 5:

- Annual cost savings from energy efficiency upgrades represent an estimated **$414,390**.
- The state's investment of nearly **$1.2 million will be repaid in just over 2.8 years** through homeowner cost savings, an annual return of 35%.
- AHFC has awarded **eight "5 Star Plus"** new home construction rebates, equating to an additional $60,000 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
  - Estimated:
    - **73% energy reduction**
    - Yearly cost savings - **$19,227**
  - **Retrofit Actions:** improved the insulation of below-grade walls and rim joists, and upgraded the heating and domestic hot water systems.





Homes in House District 5 have realized higher than average energy and cost savings compared to others across the state. Energy savings are primarily attributed to space heating system upgrades, air tightening, increased insulation, and window upgrades. Compared to other districts in the state, the homes in District 5 had higher than average energy star rating changes after completion of the program. **The combination of a large average energy reduction with the high cost of energy makes District 5 one of the top performing districts in terms of average annual cost savings Per Home Averages.**

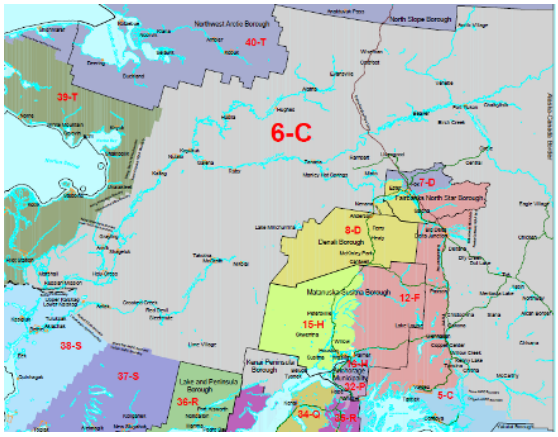
Estimated Yearly Fuel Use Reductions in District 5

Wood Use Reduction	259 cords
Coal Use Reduction	0 tons
Electric Use Reduction	50,522 kWh
Gas Use Reduction	0 therms
Oil 1/Oil 2 Use Reduction	84,982 gals
Propane Use Reduction	1,963 gals

House District 5 realized an estimated annual reduction of 85,000 gallons of fuel oil. Electrical use was reduced by 4% in House District 5.

House District 6 – Interior Villages

Senate Representative: Albert Kookesh (D)
House Representative: Alan Dick (R)



Description

House District 6 spans a large region throughout Interior Alaska and experiences a continental climate with large temperature extremes and cold winters. The primary fuel sources are oil and firewood.

Home Energy Rebate Program Participation

# of Applications	178
Expired	92
In Process	12
Completed	73
Completion Rate	43%
Avg. Completion Time (mos.)	14.6
Average Home Age	31.3
Total Rebate Funds	$0.4 million
Average Rebate Amount	$4,953

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	6.7 billion BTU
Cost Savings	$166,816
CO2 Reduction	0.8 million LBS

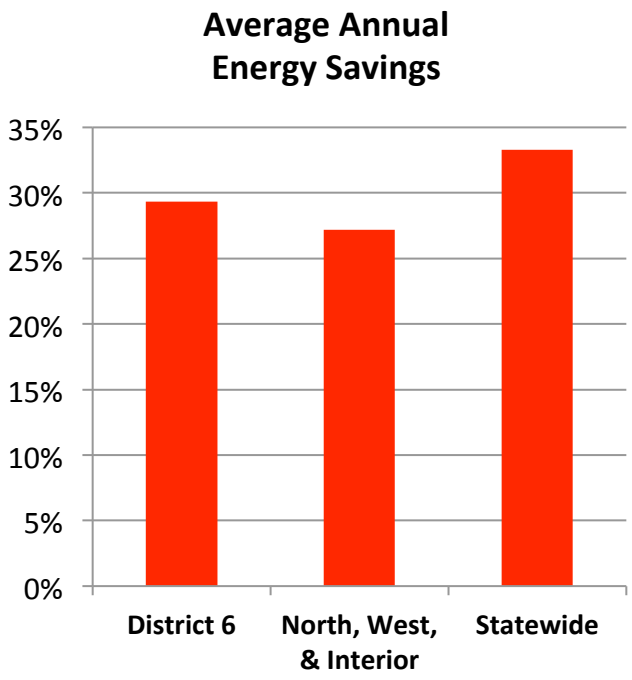
Per Home Averages

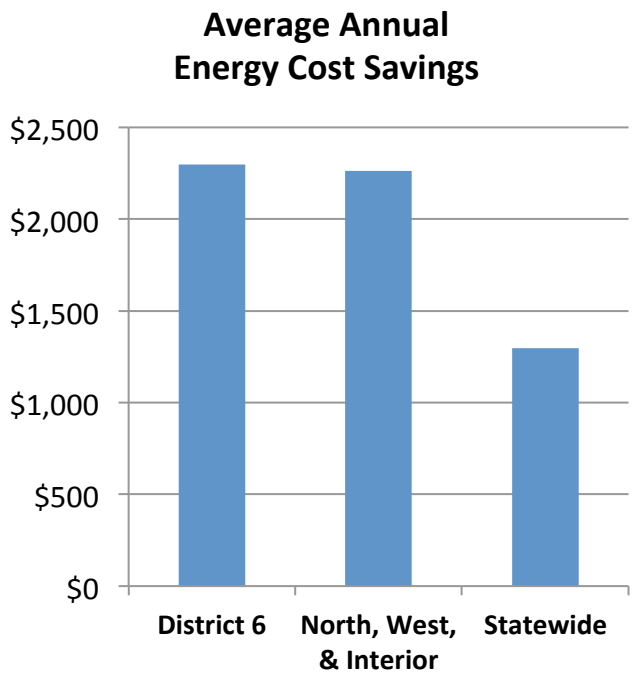
Energy Savings	29%
Cost Savings/home	$2,285

Total estimated BTUs saved in House District 6 are roughly equivalent to 49,113 gallons of #1 heating oil per year.

Of Note for House District 6:

- Annual cost savings from energy efficiency upgrades represent an estimated **$166,816**.
- The state's investment of **$431,840 will be repaid in 2.6 years** through homeowner cost savings, an annual return of 39 percent.
- AHFC has awarded **thirteen "5 Star Plus"** new home construction rebates, equating to an additional $97,500 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
  - Estimated:
    - **28% energy reduction**
    - Yearly cost savings **- $10,717**
  - **Retrofit Actions:** upgraded the heating system and changed primary heating fuels.





Homes in House District 6 have realized energy savings higher than the regional average and close to the Statewide average. Energy savings are primarily attributed to heating system upgrades, air tightening, and increased ceiling insulation. Compared to other districts in the rural North, West, and Interior Regions, the homes in District 6 had lower than average energy ratings upon entering the program, by rating points, but relatively similar energy performance after completion. District 6 realized greater cost savings than the Statewide average due to the high cost of energy in the District.

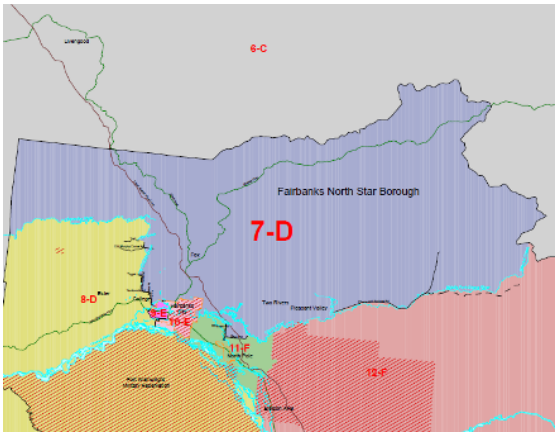
Estimated Yearly Fuel Use Reductions in District 6

Wood Use Reduction	91 cords
Coal Use Reduction	0 tons
Electric Use Reduction	37,102 kWh
Gas Use Reduction	1,449 therms
Oil 1/Oil 2 Use Reduction	28,711 gals
Propane Use Reduction	6,461 gals

House District 6 realized an estimated annual reduction of 29,000 gallons of fuel oil. Electrical use was reduced by 6% in House District 6.

House District 7 – Fairbanks: Farmers Loop/Steese Highway

Senate Representative: Joe Thomas (D)
House Representative: Bob Miller (D)



Description

House District 7 is located in Interior Alaska, on the railbelt, and experiences a continental climate with large temperature extremes and cold winters. The primary fuel source is oil.

Home Energy Rebate Program Participation

# of Applications	1134
Expired	410
In Process	88
Completed	631
Completion Rate	60%
Avg. Completion Time (mos.)	13.3
Average Home Age	30.9
Total Rebate Funds	$3.9 million
Average Rebate Amount	$5,448

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	50.8 billion BTU
Cost Savings	$1,525,776
CO2 Reduction	9.6 million LBS

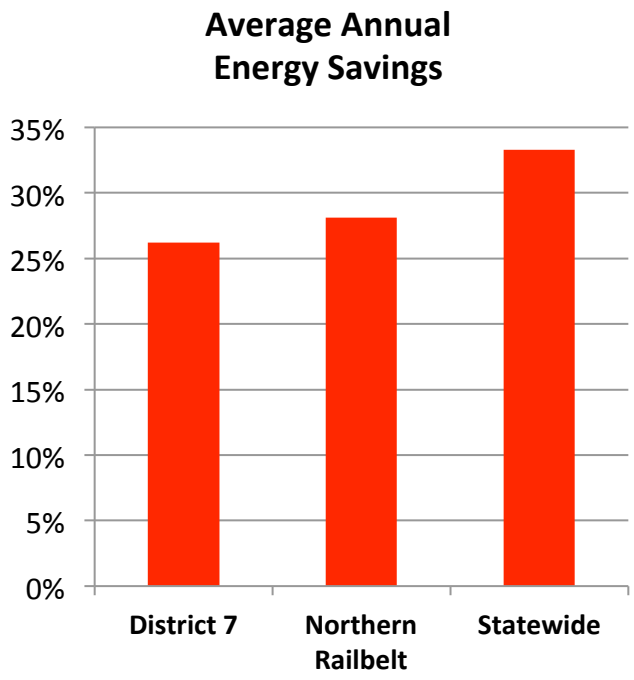
Per Home Averages

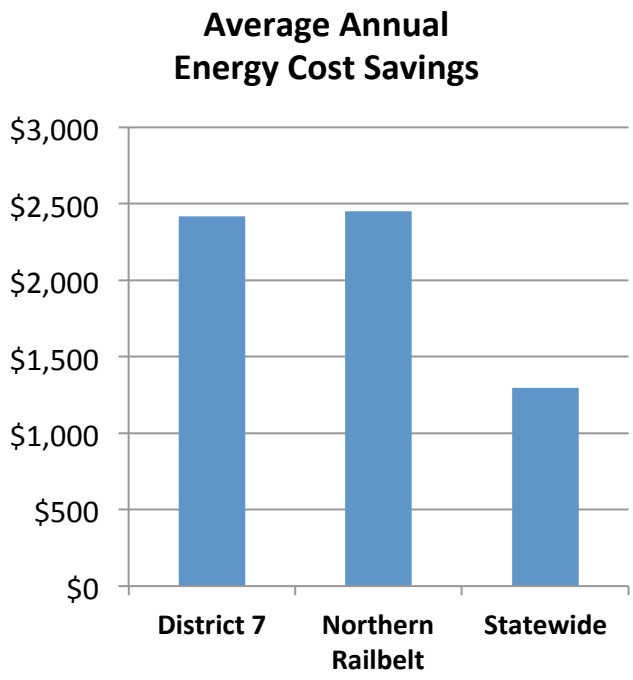
Energy Savings	26%
Cost Savings/home	$2,418

Total estimated BTUs saved in House District 7 are roughly equivalent to 373,673 gallons of #1 heating oil per year.

Of Note for House District 7:

- Annual cost savings from energy efficiency upgrades represent an estimated **$1.5 million**.
  - The state's investment of **$3.9 million** will be **repaid in just over 2.6 years** through homeowner cost savings, an annual return of 39%.
- AHFC has awarded **88 "5 Star Plus"** new home construction rebates, the largest number in the state, equating to an additional $660,000 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
  - Estimated:
    - **72% energy reduction**
    - Yearly cost savings - **$19,466**
  - **Retrofit Actions:** improved the insulation in the floor and walls; tightened the structure; and upgraded the heating system with a smaller, more efficient unit.





Homes in House District 7 have energy savings that are lower than the Region and Statewide averages. Energy savings are primarily attributed to domestic hot water and heating system upgrades, air tightening, increased insulation, and window upgrades. On average, homes in District 7 are more energy efficient upon entering the rebate program, and they finish with ratings above the Statewide average. District 7 realized higher than average energy cost savings compared to the Statewide average, due to both higher cost heating oil and higher electrical rates than other urban areas in Alaska. These higher than average energy costs mean that smaller energy efficiency improvements can still lead to greater costs savings.

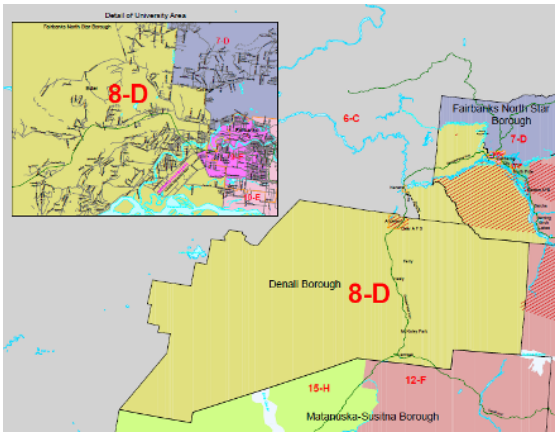
Estimated Yearly Fuel Use Reductions in District 7

Wood Use Reduction	108 cords
Coal Use Reduction	1 tons
Electric Use Reduction	1,020,643 kWh
Gas Use Reduction	0 therms
Oil 1/Oil 2 Use Reduction	325,723 gals
Propane Use Reduction	253 gals

House District 7 realized an estimated annual reduction of 326,000 gallons of fuel oil. Electrical use was reduced by 14% in House District 7.

House District 8 – Fairbanks/University/Denali

Senate Representative: Joe Thomas (D)
House Representative: David Guttenberg (D)



Description

House District 8 is located in Interior Alaska, on the railbelt, and experiences a continental climate with large temperature extremes and cold winters. The primary fuel source is oil.

Home Energy Rebate Program Participation

# of Applications	1035
Expired	384
In Process	59
Completed	589
Completion Rate	60%
Avg. Completion Time (mos.)	13.0
Average Home Age	30.3
Total Rebate Funds	$3.6 million
Average Rebate Amount	$5,321

Home Energy Rebate Program Outcomes
Estimated Yearly Savings

District Wide Totals

Energy Savings	42.4 billion BTU
Cost Savings	$1,284,409
CO2 Reduction	7.9 million LBS

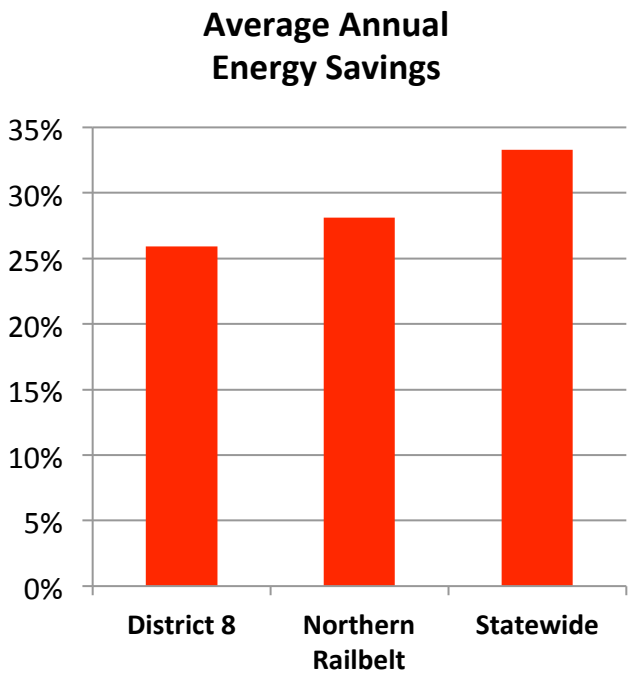
Per Home Averages

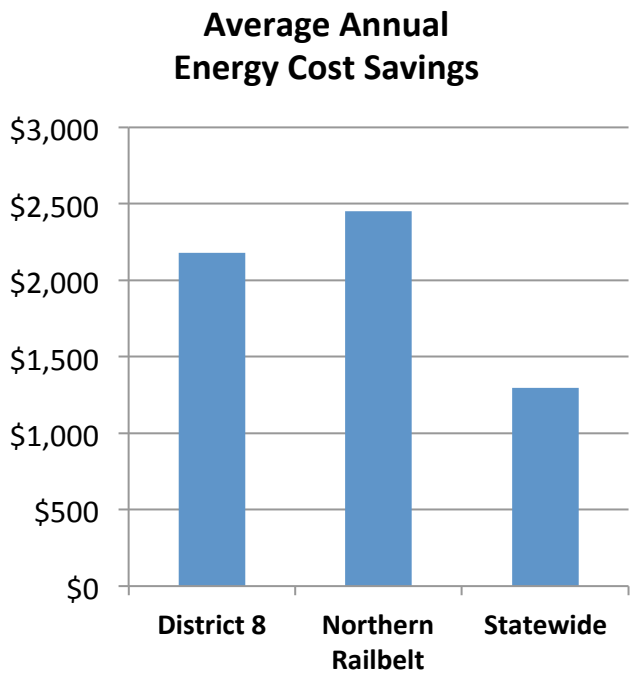
Energy Savings	26%
Cost Savings/home	$2,181

Total estimated BTUs saved in House District 8 are roughly equivalent to 311,861 gallons of #1 heating oil per year.

Of Note for House District 8:

- Annual cost savings from energy efficiency upgrades represent an estimated **$1.3 million.**
- The state's investment of nearly **$3.6 million will be repaid in 2.8 years** through homeowner cost savings, an annual return of 36%.
- AHFC has awarded **49 "5 Star Plus"** new home construction rebates, equating to an additional $367,500 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated:
        - **62% energy reduction**
        - Yearly cost savings - **$10,865**
    - **Retrofit Actions:** improved the insulation in the floors, walls, and ceiling, and tightened the structure.





Homes in House District 8 have realized lower than Energy Savings compared to both the regional and the statewide average. Energy cost savings in District 8 are lower than other districts in the region, but higher than the Statewide average. The Northern Railbelt is dependent on high-cost heating oil for space heat and has higher electrical rates than other urban areas in Alaska. These higher than average energy costs mean that smaller relative energy efficiency improvements can still lead to greater cost savings. Energy savings are primarily attributed to domestic hot water and heating system upgrades, air tightening, increased insulation, and window upgrades. On average, homes in District 8 are more energy efficient upon entering the rebate program and finish with ratings above the Statewide average.

Estimated Yearly Fuel Use Reductions in District 8

Wood Use Reduction	8 cords
Coal Use Increase	3 tons
Electric Use Reduction	624,469 kWh
Gas Use Reduction	77 therms
Oil 1/Oil 2 Use Reduction	290,893 gals
Propane Use Increase	914 gals

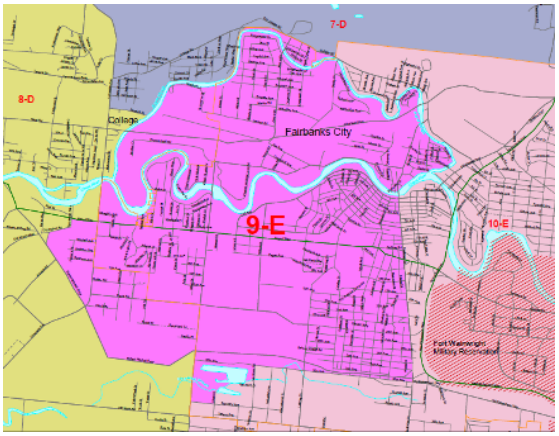
House District 8 realized an estimated annual reduction of 291,000 gallons of fuel oil. Electrical use was reduced by 10% in House District 8.

House District 9 – Fairbanks City

Senate Representative: Joe Paskvan (D)
House Representative: Scott Kawasaki (D)

Description

House District 9 is located in Interior Alaska, on the railbelt, and experiences a continental climate with large temperature extremes and cold winters. The primary fuel source is oil.



Home Energy Rebate Program Participation

# of Applications	686
Expired	240
In Process	39
Completed	406
Completion Rate	62%
Avg. Completion Time (mos.)	12.5
Average Home Age	40.4
Total Rebate Funds	$2.7 million
Average Rebate Amount	$5,920

Home Energy Rebate Program Outcomes
Estimated Yearly Savings

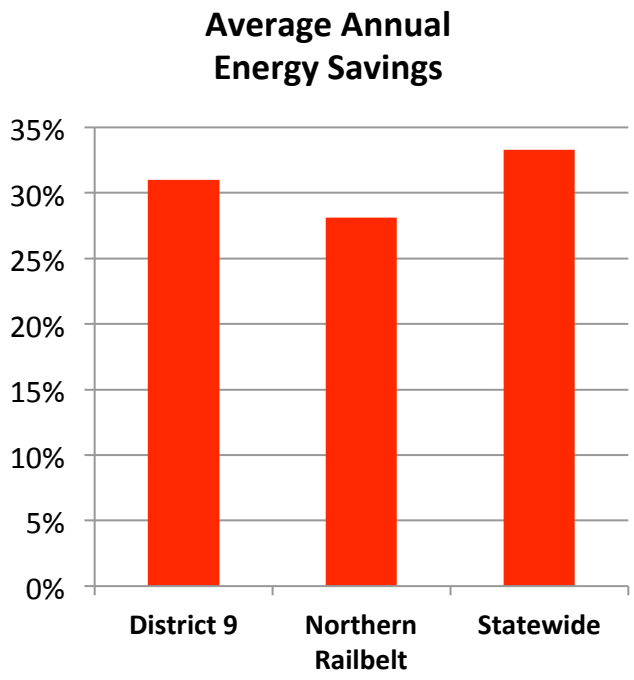
Energy Savings	42 billion BTU
Cost Savings	$1,190,170
CO2 Reduction	6.9 million LBS

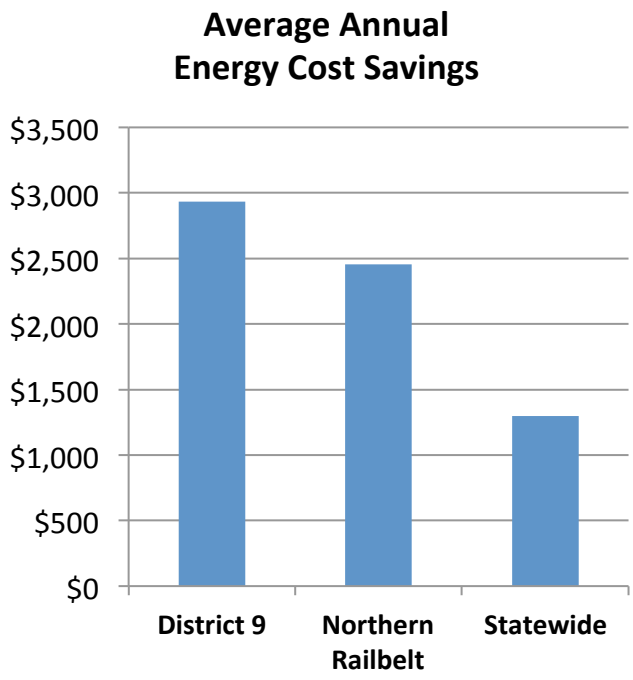
Per Home Averages	
Energy Savings	31%
Cost Savings/home	$2,931

Total estimated BTUs saved in House District 9 are roughly equivalent to 308,699 gallons of #1 heating oil per year.

Of Note for House District 9:

- Annual cost savings from energy efficiency upgrades represent an estimated **$1.2 million.**
- The state's investment of nearly **$2.7 million will be repaid in just over 2.3 years** through homeowner cost savings, an annual return of 44%.
- AHFC has awarded **seven "5 Star Plus"** new home construction rebates, equating to an additional $52,500 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated:
        - **64% energy reduction**
        - Yearly cost savings - **$12,027**
    - **Retrofit Actions:** improved the insulation of below-grade walls, tightened the structure, and upgraded the heating and domestic hot water systems.





Homes in House District 9 have realized higher than Energy Savings compared to their Region, but slightly lower than other Districts in the Region. They have realized significantly higher energy cost savings compared to others in their Region and Statewide. The average cost saving of $2,930 is the highest among all districts Statewide. These savings are attributable to both high energy costs and somewhat greater relative energy efficiency improvements than other districts in the region. Energy savings are primarily attributed to domestic hot water and heating system upgrades, air tightening, increased insulation, and window upgrades. Homes in District 9 entered the program with lower energy ratings than those of other districts in the region, but upon completion had energy ratings comparable to the regional average.

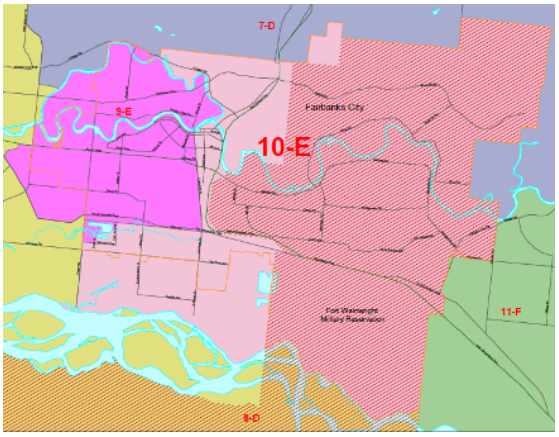
Estimated Yearly Fuel Use Reductions in District 9

Wood Use Reduction	24 cords
Coal Use Increase	2 tons
Electric Use Reduction	297,363 kWh
Gas Use Reduction	60,503 therms
Oil 1/Oil 2 Use Reduction	246,813 gals
Propane Use Reduction	86 gals

House District 9 realized an estimated annual reduction of 247,000 gallons of fuel oil. Electrical use was reduced by 7% in House District 9.

House District 10 – Fairbanks/Fort Wainwright

Senate Representative: Joe Paskvan (D)
House Representative: Steve Thompson (R)



Description

House District 10 is located in Interior Alaska, on the railbelt, and experiences a continental climate with large temperature extremes and cold winters. The primary fuel source is oil.

Home Energy Rebate Program Participation

# of Applications	376
Expired	112
In Process	27
Completed	236
Completion Rate	67%
Avg. Completion Time (mos.)	12.1
Average Home Age	39.4
Total Rebate Funds	$1.5 million
Average Rebate Amount	$5,525

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	20.8 billion BTU
Cost Savings	$583,948
CO2 Reduction	3.4 million LBS

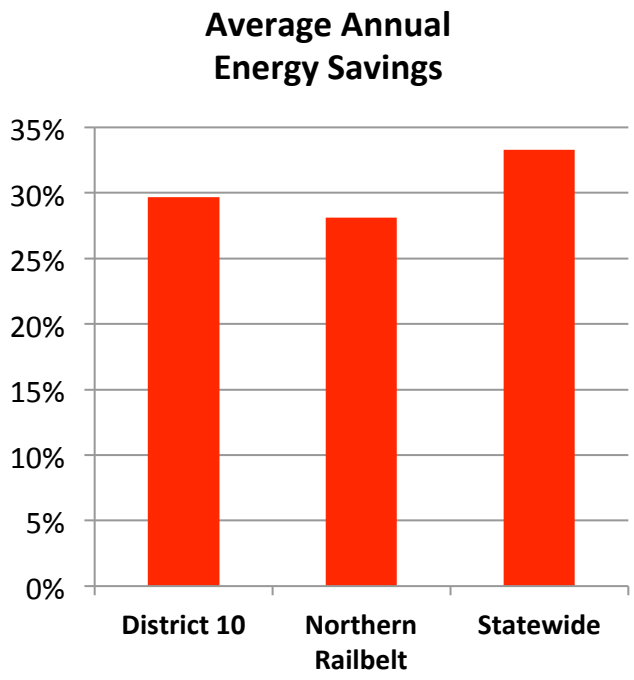
Per Home Averages

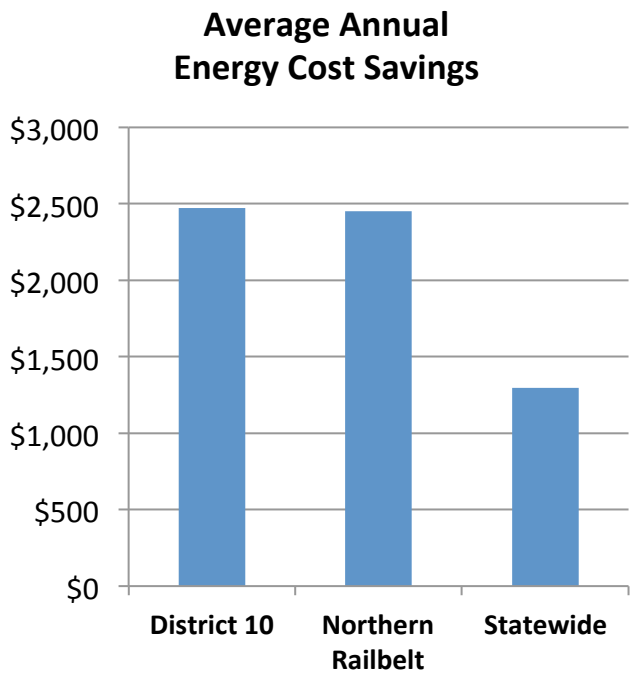
Energy Savings	30%
Cost Savings/home	$2,474

Total estimated BTUs saved in House District 10 are roughly equivalent to 152,761 gallons of #1 heating oil per year.

Of Note for House District 10:

- Annual cost savings from energy efficiency upgrades represent an estimated **$583,948**.
- The state's investment of nearly **$1.5 million will be repaid in just over 2.5 years** through homeowner cost savings, an annual return of 40%.
- AHFC has awarded **nine "5 Star Plus"** new home construction rebates, equating to an additional $67,500 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated:
        - **57% energy reduction**
        - Yearly cost savings **- $9,021**
    - **Retrofit Actions:** improved the wall insulation, tightened the structure, and upgraded the heating system with a smaller, more efficient unit.





Homes in House District 10 have realized energy savings that were higher than the Regional average and lower than the Statewide average. Their energy cost savings were higher than the statewide average, but commensurate with the Region's average energy cost savings. The Northern Railbelt is dependent on high-cost heating oil for space heat and has higher electrical rates than other urban areas in Alaska. These higher than average energy costs mean that smaller relative energy efficiency improvements can still lead to greater costs savings. Energy savings are primarily attributed to domestic hot water and heating system upgrades, air tightening, increased insulation, and window upgrades.

Estimated Yearly Fuel Use Reductions in District 10

Wood Use Reduction	77 cords
Coal Use Reduction	7 tons
Electric Use Reduction	175,293 kWh
Gas Use Reduction	2,559 therms
Oil 1/Oil 2 Use Reduction	130,353 gals
Propane Use Reduction	1,369 gals

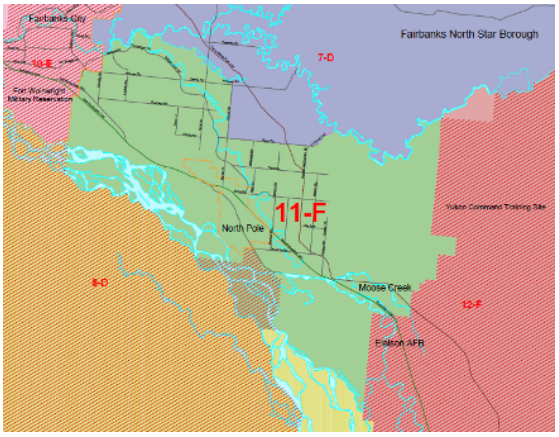
House District 10 realized an estimated annual reduction of 130,000 gallons of fuel oil. Electrical use was reduced by 7% in House District 10.

House District 11 – North Pole

Senate Representative: John Coghill, Jr. (R)
House Representative: Tammie Wilson (R)

Description

House District 11 is located in Interior Alaska, on the railbelt, and experiences a continental climate with large temperature extremes and cold winters. The primary fuel source is oil.



Home Energy Rebate Program Participation

# of Applications	798
Expired	310
In Process	67
Completed	421
Completion Rate	57%
Avg. Completion Time (mos.)	12.4
Average Home Age	28.4
Total Rebate Funds	$2.6 million
Average Rebate Amount	$5,276

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	35.8 billion BTU
Cost Savings	$1,067,456
CO2 Reduction	6.3 million LBS

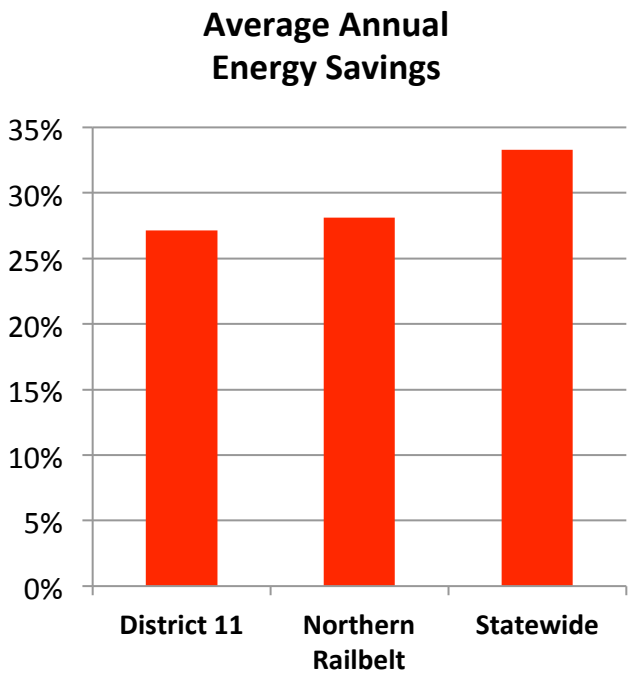
Per Home Averages

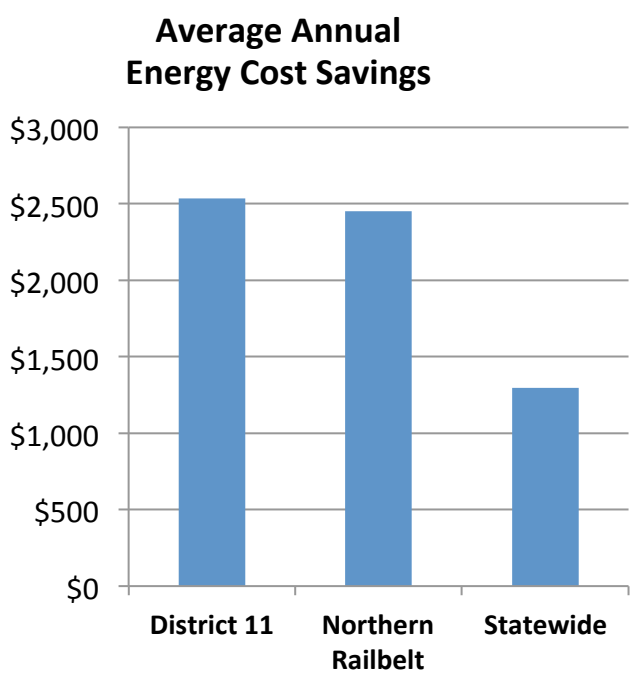
Energy Savings	27%
Cost Savings/home	$2,536

Total estimated BTUs saved in House District 11 are roughly equivalent to 263,305 gallons of #1 heating oil per year.

Of Note for House District 11:

- Annual cost savings from energy efficiency upgrades represent an estimated **$1.1 million.**
- The state's investment of nearly **$2.6 million will be repaid in just over 2.4 years** through homeowner cost savings, an annual return of 42%.
- AHFC has awarded **64 "5 Star Plus"** new home construction rebates, equating to an additional $480,000 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated:
        - **71% energy reduction**
        - Yearly cost savings - **$16,186**
    - **Retrofit Actions:** improved the insulation of the below-grade floor and walls; tightened the structure; replaced doors and windows; and upgraded the heating and domestic hot water systems.





Homes in House District 11 have realized lower than Energy Savings when compared to both the region and Statewide. However, they have higher than average energy cost savings compared to both the regional and Statewide average. The Northern Railbelt is dependent on high-cost heating oil for space heat and has higher electrical rates than other urban areas in Alaska. These higher than average energy costs mean that smaller relative energy efficiency improvements can still lead to greater cost savings. Energy savings are primarily attributed to domestic hot water and heating system upgrades, air tightening, increased insulation, and window upgrades. On average, homes in District 11 are more energy efficient upon entering the rebate program and finish with ratings above the Statewide average.

Estimated Yearly Fuel Use Reductions in District 11	
Wood Use Reduction	51 cords
Coal Use Increase	31 tons
Electric Use Reduction	480,614 kWh
Gas Use Reduction	0 therms
Oil 1/Oil 2 Use Reduction	241,691 gals
Propane Use Increase	273 gals

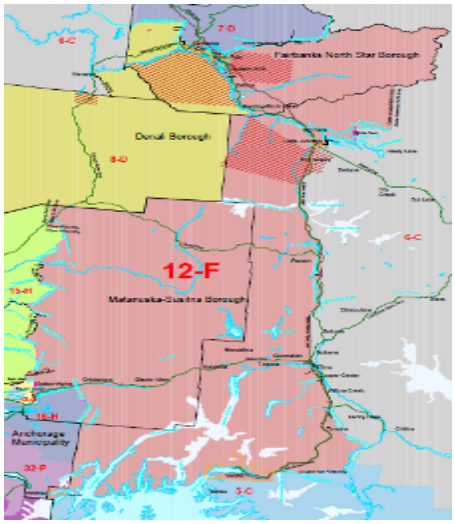
House District 11 realized an estimated annual reduction of 242,000 gallons of fuel oil. Electrical use was reduced by 11% in House District 11.

House District 12 – Richardson/Glenn Highways

Senate Representative: John Coghill, Jr. (R)
House Representative: Eric Feige (R)

Description

House District 12 is located in Interior and eastern Alaska on the road system. The northern portion of the district experiences a continental climate with large temperature extremes and cold winters, while southern areas have more moderate winter temperatures. Primary fuel sources are oil, gas, and firewood.



Home Energy Rebate Program Participation

# of Applications	501
Expired	189
In Process	45
Completed	267
Completion Rate	58%
Avg. Completion Time (mos.)	13.2
Average Home Age	30.5
Total Rebate Funds	$1.6 million
Average Rebate Amount	$5,172

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	24.9 billion BTU
Cost Savings	$555,691
CO2 Reduction	3.0 million LBS

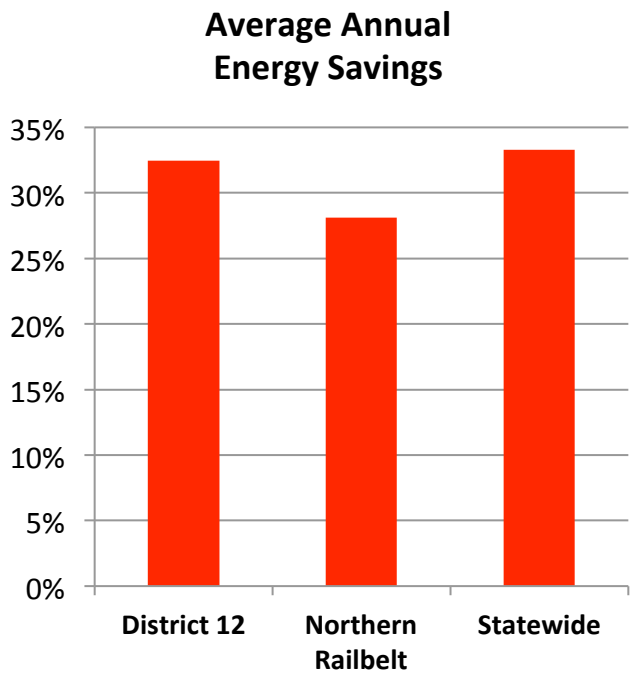
Per Home Averages

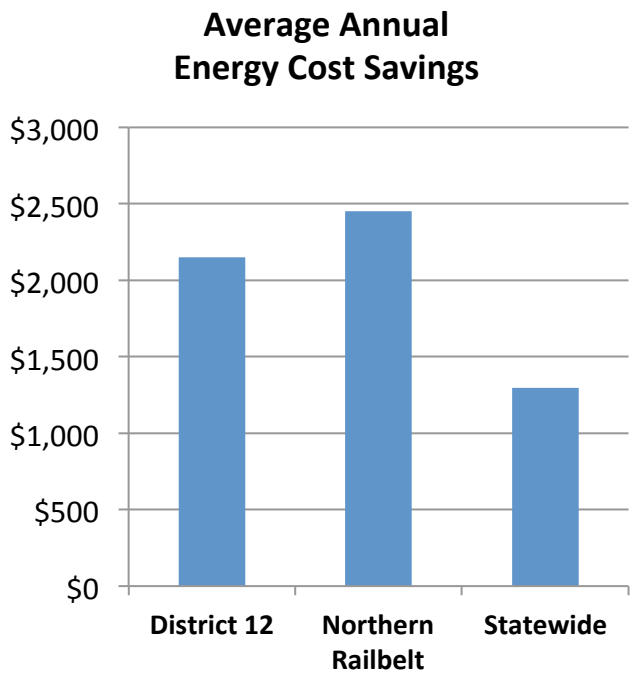
Energy Savings	32%
Cost Savings/home	$2,081

Total estimated BTUs saved in House District 12 are roughly equivalent to 183,429 gallons of #1 heating oil per year.

Of Note for House District 12:

- Annual cost savings from energy efficiency upgrades represent an estimated **$555,691**.
- The state's investment of nearly **$1.6 million will be repaid in just over 2.9 years** through homeowner cost savings, an annual return of 36%.
- AHFC has awarded **83 "5 Star Plus"** new home construction rebates, equating to an additional $622,500 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
  - Estimated:
    - **82% energy reduction**
    - Yearly cost savings - **$2,531**
  - **Retrofit Actions:** improved the insulation in the floor, walls, and ceiling; tightened the structure, and upgraded the heating system.





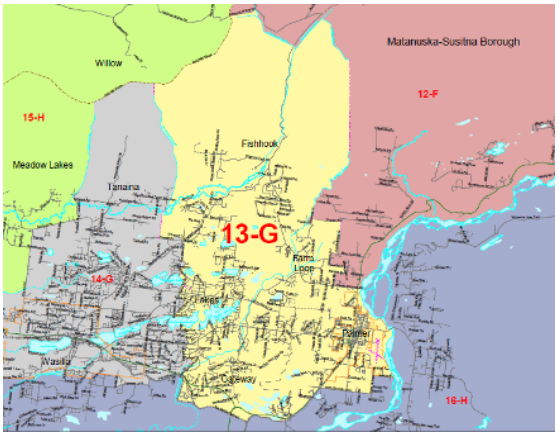
Homes in House District 12 have realized Energy Savings comparable to the Statewide average and greater than those of other districts in the Northern Railbelt Region. Energy savings are primarily attributed to heating system upgrades, air tightening, increased ceiling insulation, and window upgrades. Because a number of homes in this district are on the natural gas grid, and homeowners are paying significantly lower energy costs, annual estimated cost savings for this district are somewhat lower than other districts in the Northern Railbelt. On average, homes in District 12 entered the program with lower energy ratings than those of other districts in the region, but upon completion had energy ratings comparable to the regional average.

Estimated Yearly Fuel Use Reductions in District 12	
Wood Use Reduction	288 cords
Coal Use Reduction	0 tons
Electric Use Reduction	229,973 kWh
Gas Use Reduction	33,462 therms
Oil 1/Oil 2 Use Reduction	101,298 gals
Propane Use Reduction	6,871 gals

House District 12 realized an estimated annual reduction of 101,000 gallons of fuel oil. Electrical use was reduced by 9% in House District 12.

House District 13 – Greater Palmer

Senate Representative: Linda Menard (R)
House Representative: Shelley Hughes (R)
(formerly Carl Gatto (R))



Description

House District 13 is located on the railbelt, and experiences a transitional maritime climate with moderately cold winter temperatures. The primary fuel source is natural gas.

Home Energy Rebate Program Participation

# of Applications	803
Expired	269
In Process	82
Completed	452
Completion Rate	62%
Avg. Completion Time (mos.)	11.2
Average Home Age	27.8
Total Rebate Funds	$2.9 million
Average Rebate Amount	$5,666

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	42.6 billion BTU
Cost Savings	$371,375
CO2 Reduction	4.8 million LBS

Per Home Averages

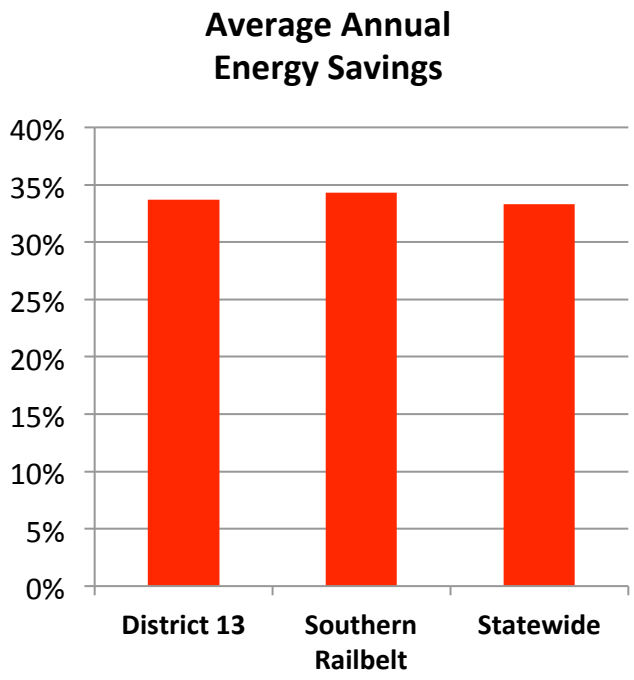
Energy Savings	34%
Cost Savings/home	$822

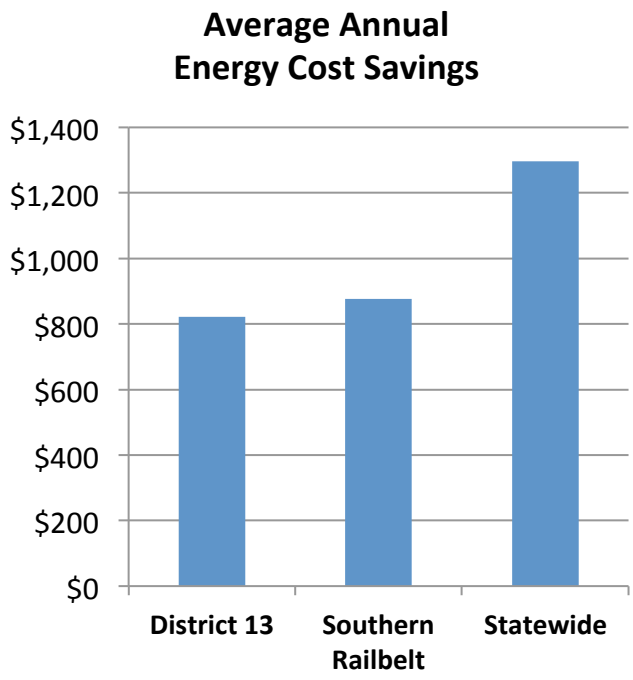
Total estimated BTUs saved in House District 13 are roughly equivalent to 426,326 therms of natural gas per year.

Of Note for House District 13:

- Annual cost savings from energy efficiency upgrades represent an estimated **$371,375**.
- It is estimated that the state's investment of over **$2.9 million will be repaid in less than 7.8 years** through homeowner cost savings, an annual return of 13%.
- AHFC has awarded **200 "5 Star Plus"** new home construction rebates, equating to an additional $1,500,000 state investment since 2008.

- **Highlighted Single Home Energy Rebate Retrofit:**
  - Estimated:
    - **76% energy reduction**
    - Yearly cost savings - **$1,487**
  - **Retrofit Actions:** reduced space heating needs.





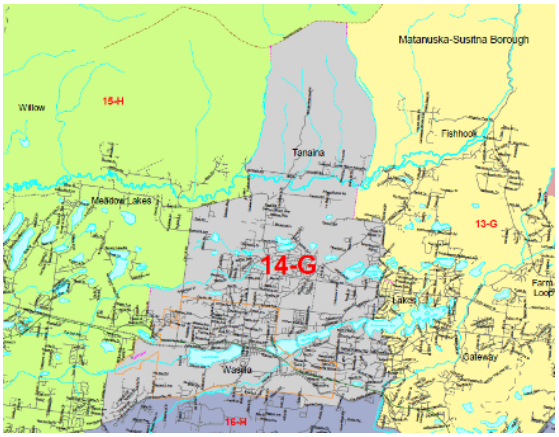
At 34% annual energy savings, homes in House District 13 are realizing energy savings on par with the Statewide and Southern Railbelt averages. The amount of natural gas being conserved as a result of Home Energy Rebate program activity in District 13 is also significant. Homes in District 14 had the second highest average energy rating in the state upon completion of the program. Energy savings are primarily attributed to heating system upgrades, and air tightened. Cost savings in District 13, like those of all of the Southern Railbelt, are below the Statewide average due to the relatively low cost of natural gas, the dominant source of heat and electricity in this region.

Estimated Yearly Fuel Use Reductions in District 13	
Wood Use Reduction	139 cords
Coal Use Reduction	0 tons
Electric Use Reduction	233,470 kWh
Gas Use Reduction	365,701 therms
Oil 1/Oil 2 Use Reduction	8,016 gals
Propane Use Reduction	7,062 gals

House District 13 realized an estimated annual reduction of 366,000 therms of natural gas. Electrical use was reduced by 6% in House District 13.

House District 14 – Greater Wasilla

Senate Representative: Linda Menard (R)
House Representative: Wes Keller (R)



Description

House District 14 is located on the railbelt, and experiences a transitional maritime climate with moderately cold winter temperatures. The primary fuel source is natural gas.

Home Energy Rebate Program Participation

# of Applications	795
Expired	256
In Process	80
Completed	459
Completion Rate	63%
Avg. Completion Time (mos.)	11.5
Average Home Age	26.8
Total Rebate Funds	$2.9 million
Average Rebate Amount	$5,570

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	39.2 billion BTU
Cost Savings	$369,435
CO2 Reduction	4.8 million LBS

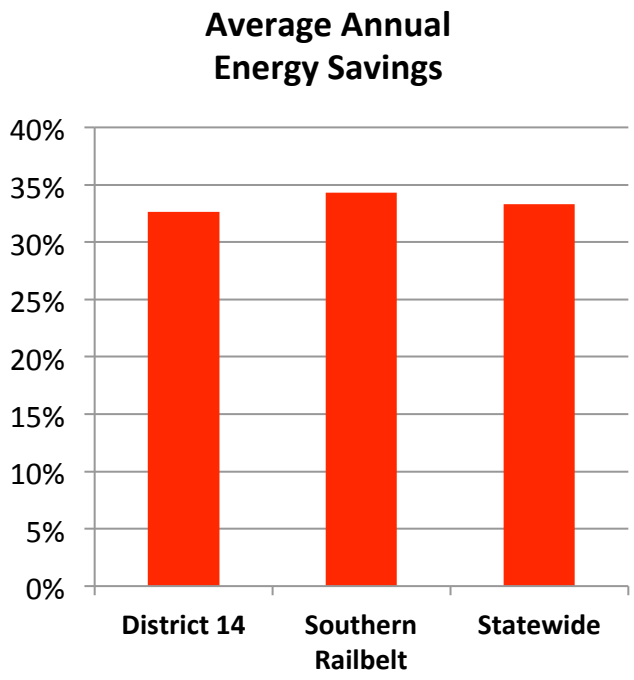
Per Home Averages

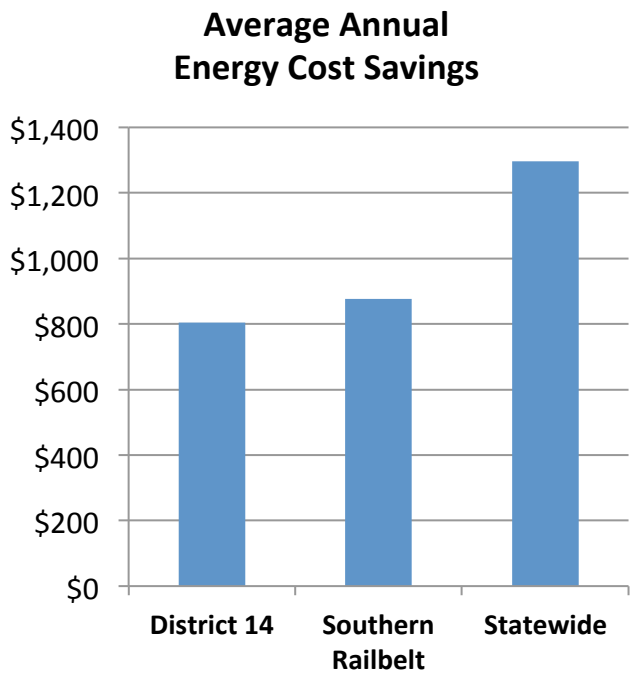
Energy Savings	33%
Cost Savings/home	$805

Total estimated BTUs saved in House District 14 are roughly equivalent to 392,221 therms of natural gas per year.

Of Note for House District 14:

- Annual cost savings from energy efficiency upgrades represent an estimated **$369,435**.
- The state's investment of nearly **$2.9 million will be repaid in less than 7.8 years** through homeowner cost savings, an annual return of 13%.
- AHFC has awarded **106 "5 Star Plus"** new home construction rebates, equating to an additional $795,000 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
  - Estimated:
    - **48% energy reduction**
    - Yearly cost savings - **$5,623**
  - **Retrofit Actions:** improved the insulation of the below-grade walls and the ceiling and upgraded the heating and domestic hot water systems.





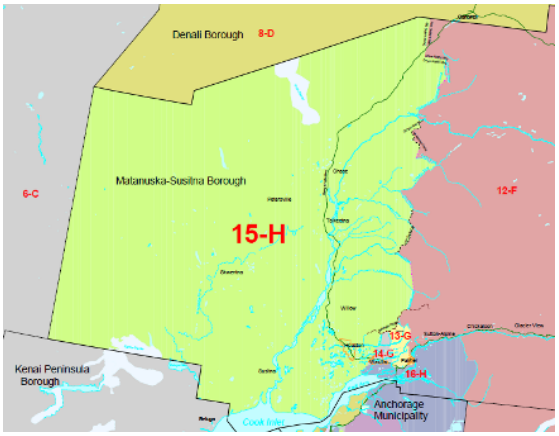
At 33% annual energy savings, homes in House District 14 are realizing energy savings on par with the Statewide and Southern Railbelt averages. The amount of natural gas being conserved as a result of Home Energy Rebate program activity in District 14 is also significant. Energy savings are primarily attributed to heating system upgrades, air tightening, increased insulation, and window upgrades. Homes in District 14 had the highest average energy rating in the state upon completion of the program. Cost savings in District 14, like those of all of the Southern Railbelt, are below the Statewide average due to the relatively low cost of natural gas, the dominant source of heat and electricity in this region.

Estimated Yearly Fuel Use Reductions in District 14	
Wood Use Reduction	71 cords
Coal Use Reduction	0 tons
Electric Use Reduction	453,880 kWh
Gas Use Reduction	332,148 therms
Oil 1/Oil 2 Use Reduction	20,705 gals
Propane Use Increase	1,548 gals

House District 14 realized an estimated annual reduction of 332,000 therms of natural gas. Electrical use was reduced by 11% in House District 14.

House District 15 – Rural Mat-Su

Senate Representative: Charlie Huggins (R)
House Representative: Mark Neuman (R)



Description

House District 15 is located on the railbelt, and experiences a transitional maritime climate with moderately cold winter temperatures. Primary fuel sources are oil, gas, and electricity generated predominantly from natural gas.

Home Energy Rebate Program Participation

# of Applications	515
Expired	206
In Process	56
Completed	253
Completion Rate	55%
Avg. Completion Time (mos.)	11.8
Average Home Age	24.2
Total Rebate Funds	$1.6 million
Average Rebate Amount	$5,534

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	21.3 billion BTU
Cost Savings	$522,237
CO2 Reduction	2.7 million LBS

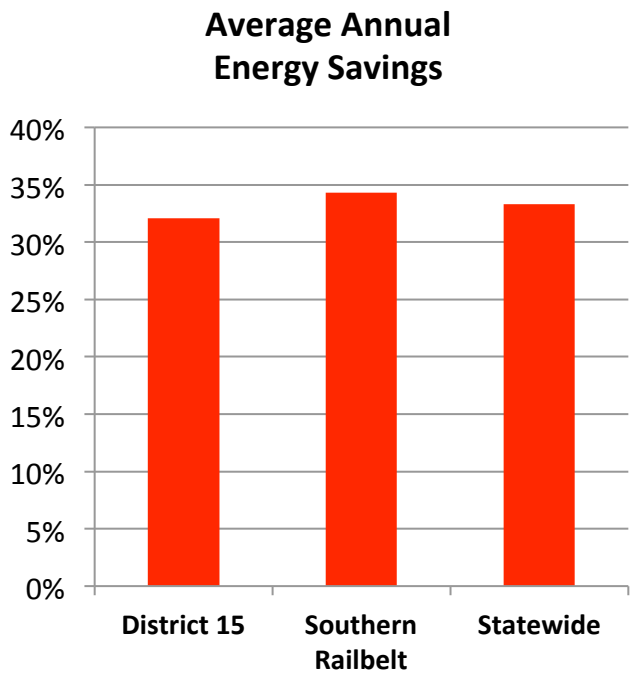
Per Home Averages

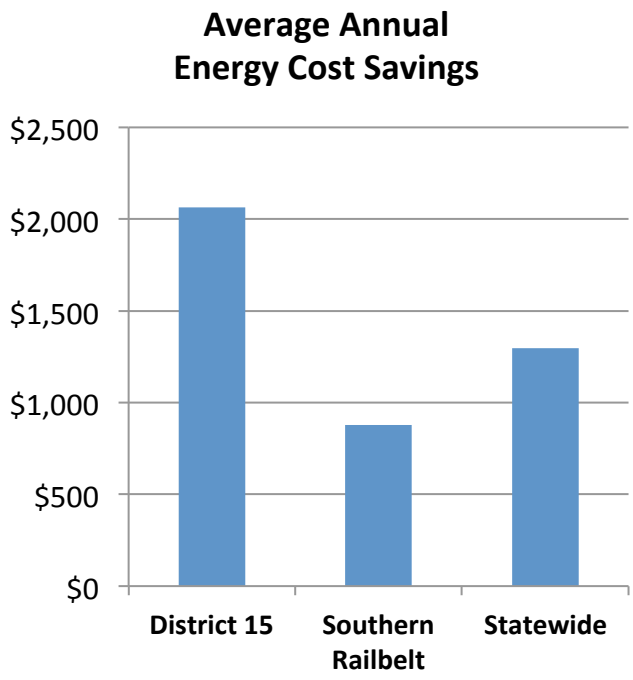
Energy Savings	32%
Cost Savings/home	$2,064

Total estimated BTUs saved in House District 15 are roughly equivalent to 213,194 therms of natural gas per year.

Of Note for House District 15:

- Annual cost savings from energy efficiency upgrades represent an estimated **$522,237**.
- It is estimated that the state's investment of over **$1.6 million will be repaid in just over 3.1 years** through homeowner cost savings, an annual return of 32%.
- AHFC has awarded **75 "5 Star Plus"** new home construction rebates, equating to an additional $585,000 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated:
        - **55% energy reduction**
        - Yearly cost savings - **$2,493**
    - **Retrofit Actions:** tightened the structure and upgraded the heating system.





Consistent with regional savings, homes in House District 15 have realized an average energy reduction close to the Statewide average, because nearly half of the homes in this district are off the natural gas grid and heating with high-cost heating oil. As a result, average annual cost savings are more similar to homes in Northern Railbelt districts and well above the Southern Railbelt and Statewide average. Energy savings are primarily attributed to domestic hot water and heating system upgrades, air tightening, and increased insulation.

Estimated Yearly Fuel Use Reductions in District 15	
Wood Use Reduction	162 cords
Coal Use Reduction	0 tons
Electric Use Reduction	472,540 kWh
Gas Use Reduction	61,852 therms
Oil 1/Oil 2 Use Reduction	45,344 gals
Propane Use Reduction	36,694 gals

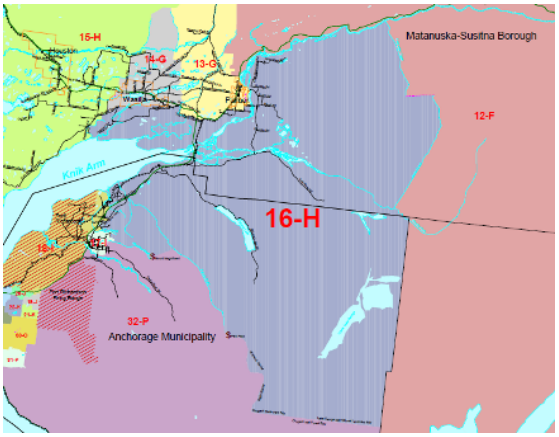
House District 15 realized an estimated annual reduction of 62,000 therms of natural gas. Electrical use was reduced by 17% in House District 15.

House District 16 – Chugiak/South Mat-Su

Senate Representative: Charlie Huggins (R)
House Representative: Bill Stoltze (R)

Description

House 16 is located on the railbelt, and experiences a transitional maritime climate with moderately cold winter temperatures. The primary fuel source is natural gas.



Home Energy Rebate Program Participation

# of Applications	1003
Expired	307
In Process	102
Completed	593
Completion Rate	65%
Avg. Completion Time (mos.)	12.4
Average Home Age	29.8
Total Rebate Funds	$3.9 million
Average Rebate Amount	$5,897

Home Energy Rebate Program Outcomes
Estimated Yearly Savings

District Wide Totals

Energy Savings	61.8 billion BTU
Cost Savings	$559,686
CO2 Reduction	7.2 million LBS

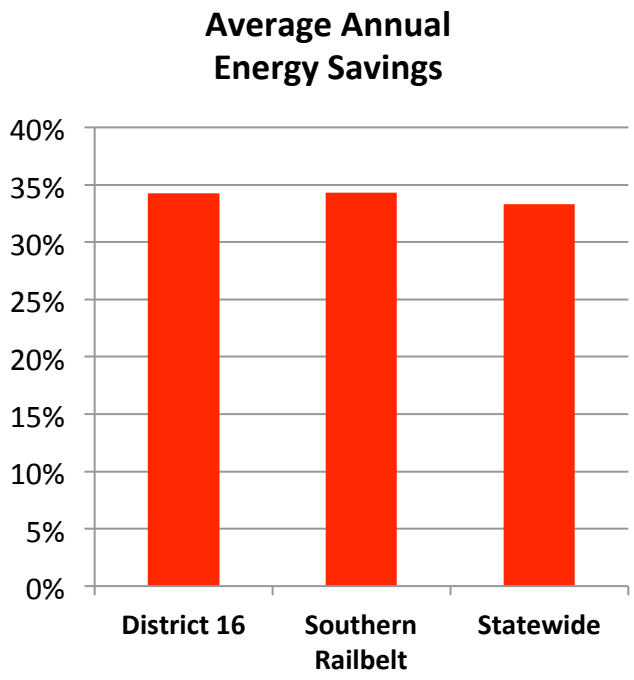
Per Home Averages

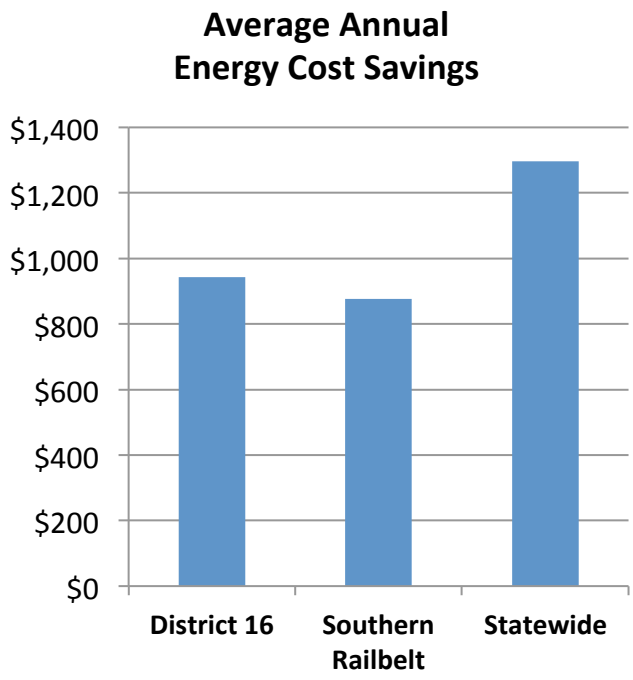
Energy Savings	34%
Cost Savings/home	$944

Total estimated BTUs saved in House District 16 are roughly equivalent to 617,786 therms of natural gas per year.

Of Note for House District 16:

- Annual cost savings from energy efficiency upgrades represent an estimated **$559,686**.
- It is estimated that the state's investment of over **$3.9 million will be repaid in just over 7.0 years** through homeowner cost savings, an annual return of 14%.
- AHFC has awarded **69 "5 Star Plus"** new home construction rebates, equating to an additional $517,500 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated:
        - **45% energy reduction**
        - Yearly cost savings - **$15,558**
    - **Retrofit Actions:** upgraded the heating system, and changed primary fuel type.





At 34% annual energy savings, homes in House District 16 are realizing energy savings on par with the Statewide and Southern Railbelt averages. The amount of natural gas being conserved as a result of Home Energy Rebate program activity in District 16 is also significant. Energy savings are primarily attributed to heating system upgrades, air tightening, increased ceiling insulation, and window upgrades. Cost savings in District 16, like those of all of the Southern Railbelt, are below the Statewide average due to the relatively low cost of natural gas, the dominant source of heat and electricity in this region.

Estimated Yearly Fuel Use Reductions in District 16	
Wood Use Reduction	143 cords
Coal Use Reduction	0 tons
Electric Use Reduction	350,955 kWh
Gas Use Reduction	531,639 therms
Oil 1/Oil 2 Use Reduction	24,020 gals
Propane Use Reduction	6,092 gals

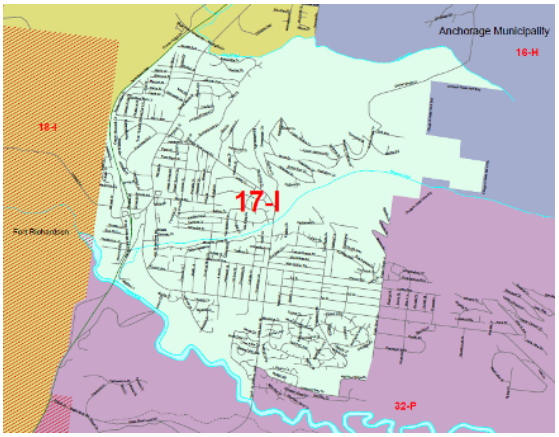
House District 16 realized an estimated annual reduction of 532,000 therms of natural gas. Electrical use was reduced by 7% in House District 16.

House District 17 – Eagle River

Senate Representative: Fred Dyson (R)
House Representative: Anna Fairclough (R)

Description

House District 17 is located in Southcentral Alaska, on the railbelt, and experiences a transitional maritime climate with moderately cold winter temperatures. The primary fuel source is natural gas.



Home Energy Rebate Program Participation

# of Applications	1149
Expired	241
In Process	147
Completed	760
Completion Rate	75%
Avg. Completion Time (mos.)	12.3
Average Home Age	29.6
Total Rebate Funds	$5.1 million
Average Rebate Amount	$6,083

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	80.5 billion BTU
Cost Savings	$576,400
CO2 Reduction	9.1 million LBS

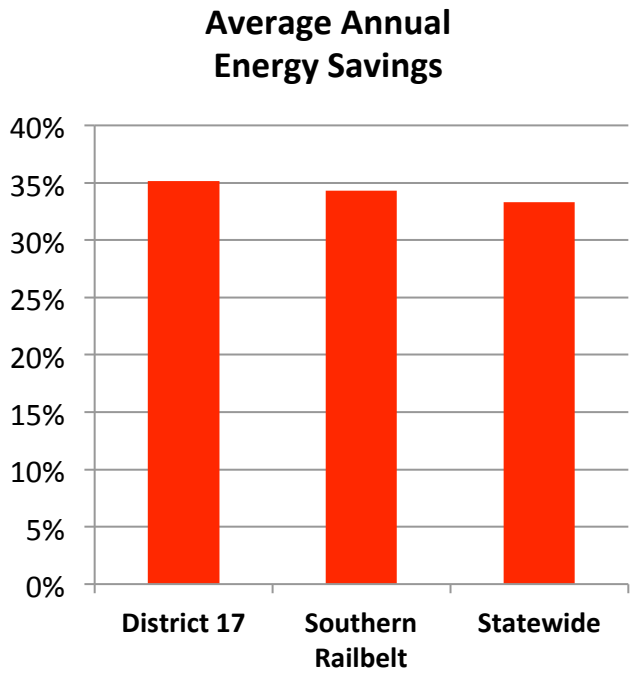
Per Home Averages

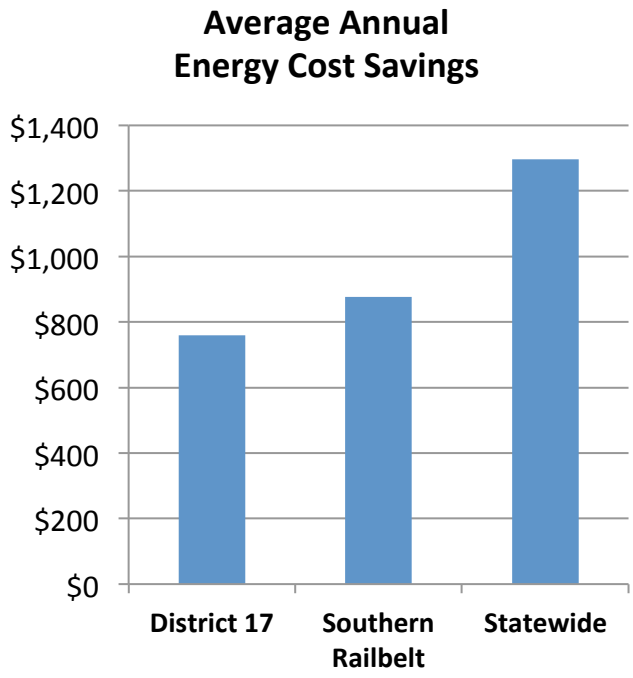
Energy Savings	35%
Cost Savings/home	$758

Total estimated BTUs saved in House District 17 are roughly equivalent to 804,578 therms of natural gas per year.

Of Note for House District 17:

- Annual cost savings from energy efficiency upgrades represent an estimated **$576,400**.
- It is estimated that the state's investment of over **$5.1 million will be repaid in 8.9 years** through homeowner cost savings, an annual return of 11%.
- AHFC has awarded **six "5 Star Plus"** new home construction rebates, equating to an additional $45,000 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated:
        - **64% energy reduction**
        - Yearly cost savings - **$3,654**
    - **Retrofit Actions:** improved the insulation of below-grade walls and rim joists and upgraded the heating system.





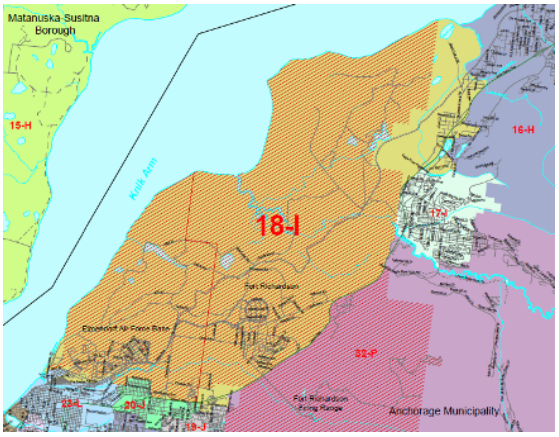
At 35% annual energy savings, homes in House District 17 are realizing energy savings slightly higher than the Statewide and Southern Railbelt averages. The amount of natural gas being conserved as a result of Home Energy Rebate program activity in District 17 is also significant. Energy savings are primarily attributed to heating system upgrades, air tightening, and increased ceiling insulation. Cost savings in District 17, like those of all of the Southern Railbelt, are below the Statewide average due to the relatively low cost of natural gas, the dominant source of heat and electricity in this region.

Estimated Yearly Fuel Use Reductions in District 17	
Wood Use Reduction	141 cords
Coal Use Reduction	0 tons
Electric Use Reduction	224,020 kWh
Gas Use Reduction	760,811 therms
Oil 1/Oil 2 Use Reduction	0 gals
Propane Use Reduction	0 gals

House District 17 realized an estimated annual reduction of 761,000 therms of natural gas. Electrical use was reduced by 4% in House District 1.

House District 18 – Anchorage: Military

Senate Representative: Fred Dyson (R)
House Representative: Dan Saddler (R)



Description

House District 18 is located in South Central Alaska on the railbelt, and experiences a transitional maritime climate with moderately cold winter temperatures. The primary fuel source is natural gas.

Home Energy Rebate Program Participation

# of Applications	137
Expired	37
In Process	15
Completed	83
Completion Rate	66%
Avg. Completion Time (mos.)	12.3
Average Home Age	35.0
Total Rebate Funds	$0.6 million
Average Rebate Amount	$6,069

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	8.8 billion BTU
Cost Savings	$62,595
CO2 Reduction	1.0 million LBS

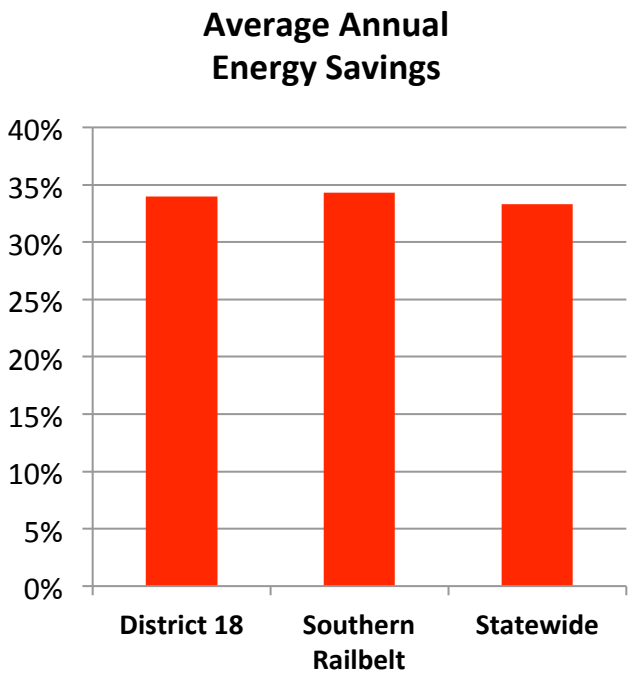
Per Home Averages

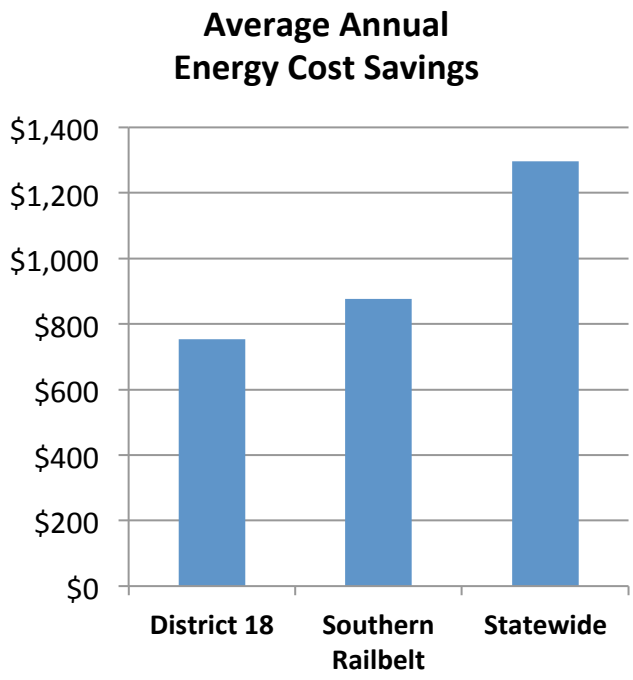
Energy Savings	34%
Cost Savings/home	$754

Total estimated BTUs saved in House District 18 are roughly equivalent to 88,278 therms of natural gas per year.

Of Note for House District 18:

- Annual cost savings from energy efficiency upgrades represent an estimated **$62,595**.
- The state's investment of **$561,630 will be repaid in less than 9.0 years** through homeowner cost savings, an annual return of 11%.
- AHFC has awarded **21 "5 Star Plus"** new home construction rebates, equating to an additional $157,500 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated:
        - **35% energy reduction**
        - Yearly cost savings - **$3,460**
    - **Retrofit Actions:** replaced the doors and windows; tightened the structure; and upgraded the heating system.





At 34% annual energy savings, homes in House District 18 are realizing energy savings on par with the Statewide and Southern Railbelt averages. District 18 was the only district to see a significant reduction in appliance energy use. Energy savings are primarily attributed to heating system upgrades, air tightening, appliance change-outs, and increased ceiling insulation. Cost savings in District 18, like those of all of the Southern Railbelt, are below the Statewide average due to the relatively low cost of natural gas, the dominant source of heat and electricity in this region.

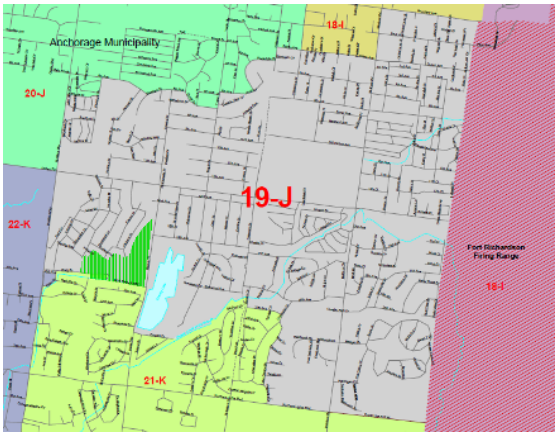
Estimated Yearly Fuel Use Reductions in District 18

Wood Use Reduction	16 cords
Coal Use Reduction	0 tons
Electric Use Reduction	14,333 kWh
Gas Use Reduction	84,328 therms
Oil 1/Oil 2 Use Reduction	0 gals
Propane Use Reduction	0 gals

House District 18 realized an estimated annual reduction of 84,000 therms of natural gas. Electrical use was reduced by 2% in House District 18.

House District 19 – Anchorage: Muldoon

Senate Representative: Bill Wielechowski (D)
House Representative: Pete Petersen (D)



Description

House 19 is located in Southcentral Alaska on the railbelt, and experiences a transitional maritime climate with moderately cold winter temperatures. The primary fuel source is natural gas.

Home Energy Rebate Program Participation

# of Applications	654
Expired	183
In Process	78
Completed	392
Completion Rate	67%
Avg. Completion Time (mos.)	12.8
Average Home Age	39.7
Total Rebate Funds	$2.8 million
Average Rebate Amount	$6,392

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	41.7 billion BTU
Cost Savings	$298,877
CO2 Reduction	4.6 million LBS

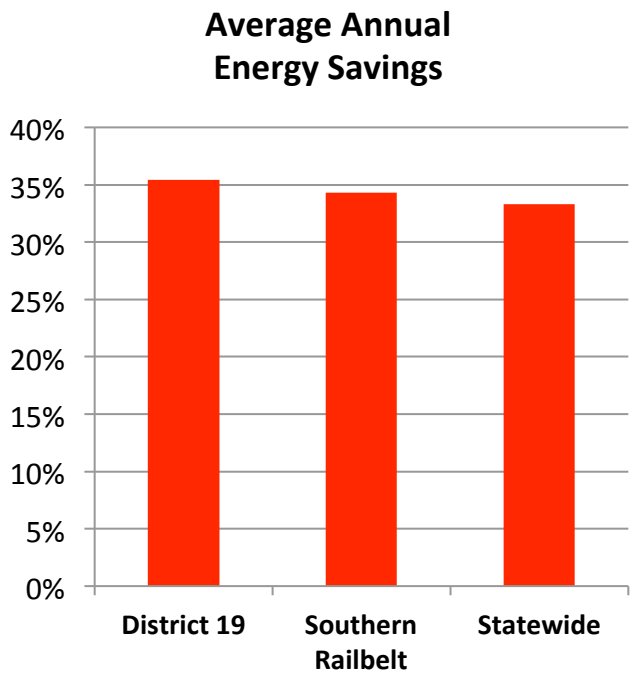
Per Home Averages

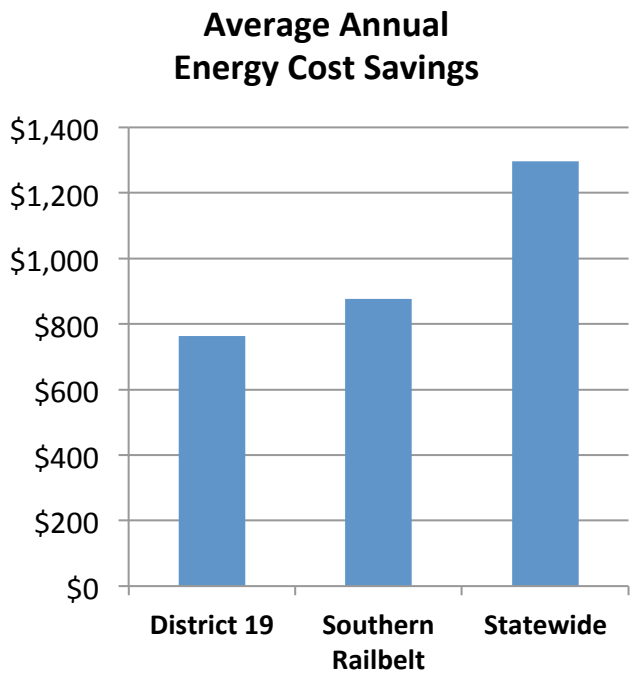
Energy Savings	35%
Cost Savings/home	$762

Total estimated BTUs saved in House District 19 are roughly equivalent to 416,650 therms of natural gas per year.

Of Note for House District 19:

- Annual cost savings from energy efficiency upgrades represent an estimated **$298,877**.
- The state's investment of nearly **$2.8 million will be repaid in less than 9.3 years** through homeowner cost savings, an annual return of 11%.
- AHFC has awarded **one "5 Star Plus"** new home construction rebate, equating to an additional $7,500 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated:
        - **77% energy reduction**
        - Yearly cost savings - **$4,583**
    - **Retrofit Actions:** improved the insulation in the floor, walls, and ceiling; tightened the structure; and upgraded the heating and domestic hot water systems.





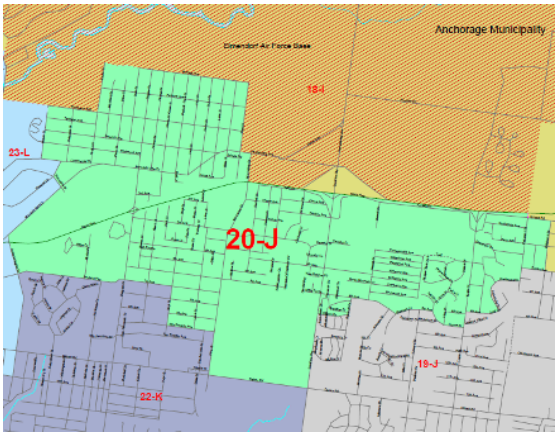
At 35% annual energy savings, homes in House District 19 are similar to the Statewide and Southern Railbelt averages. The amount of natural gas being conserved as a result of Home Energy Rebate program activity in District 19 is also significant. Energy savings are primarily attributed to heating system upgrades, increased ceiling insulation, and window upgrades. Cost savings in District 19, like all of the Southern Railbelt region, are below the Statewide average due to the relatively low cost of natural gas, the dominant source of heat and electricity in this region.

Estimated Yearly Fuel Use Reductions in District 19	
Wood Use Reduction	103 cords
Coal Use Reduction	0 tons
Electric Use Reduction	106,494 kWh
Gas Use Reduction	387,540 therms
Oil 1/Oil 2 Use Reduction	0 gals
Propane Use Reduction	0 gals

House District 19 realized an estimated annual reduction of 388,000 therms of natural gas. Electrical use was reduced by 3% in House District 19.

House District 20 – Anchorage: Mountain View/Wonder Park

Senate Representative: Bill Wielechowski (D)
House Representative: Max Gruenberg, Jr. (D)



Description

House District 20 is located in Southcentral Alaska on the railbelt, and experiences a transitional maritime climate with moderately cold winter temperatures. The primary fuel source is natural gas.

Home Energy Rebate Program Participation

# of Applications	281
Expired	73
In Process	56
Completed	151
Completion Rate	67%
Avg. Completion Time (mos.)	12.5
Average Home Age	37.4
Total Rebate Funds	$1.1 million
Average Rebate Amount	$6,753

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	17.3 billion BTU
Cost Savings	$122,850
CO2 Reduction	1.9 million LBS

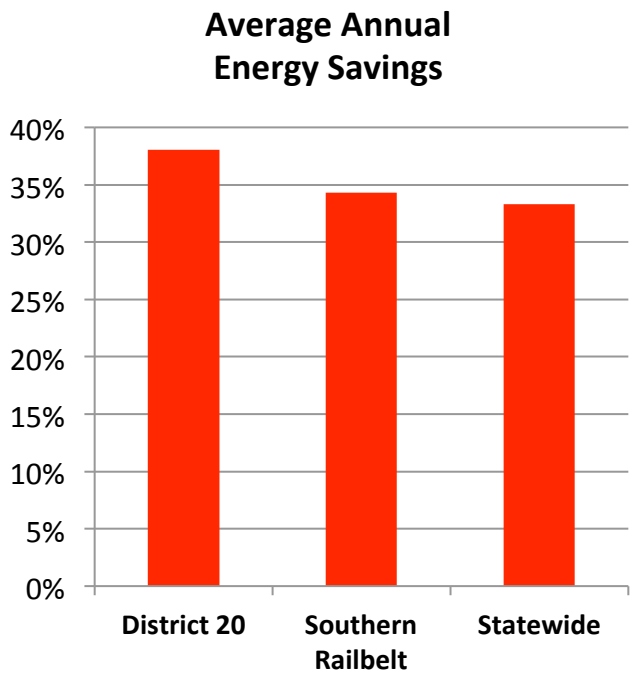
Per Home Averages

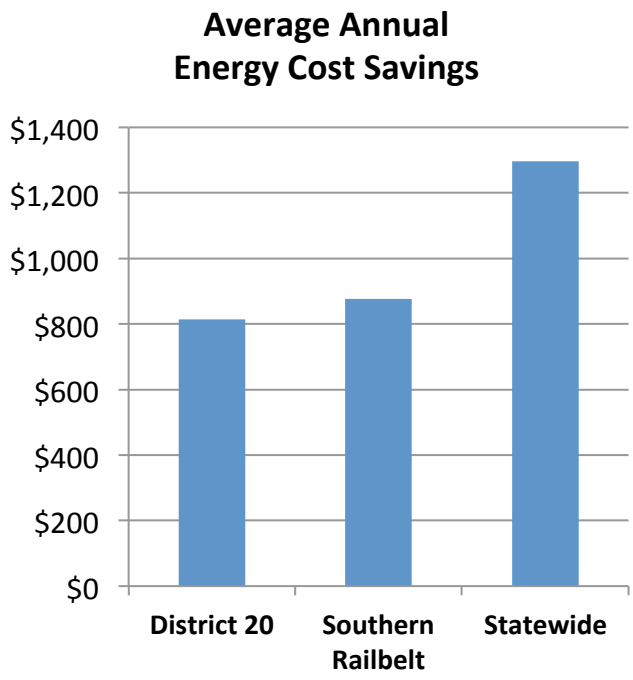
Energy Savings	38%
Cost Savings/home	$814

Total estimated BTUs saved in House District 20 are roughly equivalent to 172,953 therms of natural gas per year.

Of Note for House District 20:

- Annual cost savings from energy efficiency upgrades represent an estimated **$122,850**.
- It is estimated that the state's investment of over **$1.1 million will be repaid in just over 9.3 years** through homeowner cost savings, an annual return of 11%.
- AHFC has awarded **18 "5 Star Plus"** new home construction rebates, equating to an additional $135,000 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated:
        - **64% energy reduction**
        - Yearly cost savings - **$3,772**
    - **Retrofit Actions:** upgraded the heating system, and changed fuel types.





At 38% annual energy savings, homes in House District 20 are realizing greater energy savings than the Statewide and Southern Railbelt averages. District 20 is ranked third in the state in terms of percent energy reduction. The amount of natural gas being conserved as a result of Home Energy Rebate program activity in District 20 is also significant. Energy savings are primarily attributed to heating system upgrades, air tightening, and window upgrades. Cost savings in District 20, like those of all of the Southern Railbelt communities, are below the Statewide average due to the relatively low cost of natural gas, the dominant source of heat and electricity in this region. Homes in District 20 showed the second largest Energy Star rating change in the state.

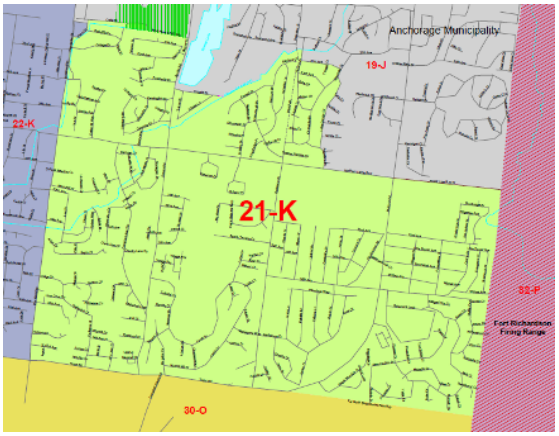
Estimated Yearly Fuel Use Reductions in District 20

Wood Use Reduction	52 cords
Coal Use Reduction	0 tons
Electric Use Reduction	32,528 kWh
Gas Use Reduction	158,696 therms
Oil 1/Oil 2 Use Reduction	0 gals
Propane Use Reduction	0 gals

House District 20 realized an estimated annual reduction of 159,000 therms of natural gas. Electrical use was reduced by 3% in House District 20.

House District 21 – Anchorage: Baxter Bog

Senate Representative: Bettye Davis (D)
House Representative: Lance Pruitt (R)



Description

House District 21 is located in Southcentral Alaska, on the railbelt, and experiences a transitional maritime climate with moderately cold winter temperatures. The primary fuel source is natural gas.

Home Energy Rebate Program Participation

# of Applications	1165
Expired	292
In Process	146
Completed	723
Completion Rate	70%
Avg. Completion Time (mos.)	13.2
Average Home Age	33.6
Total Rebate Funds	$5.2 million
Average Rebate Amount	$6,477

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	79.1 billion BTU
Cost Savings	$599,430
CO2 Reduction	8.9 million LBS

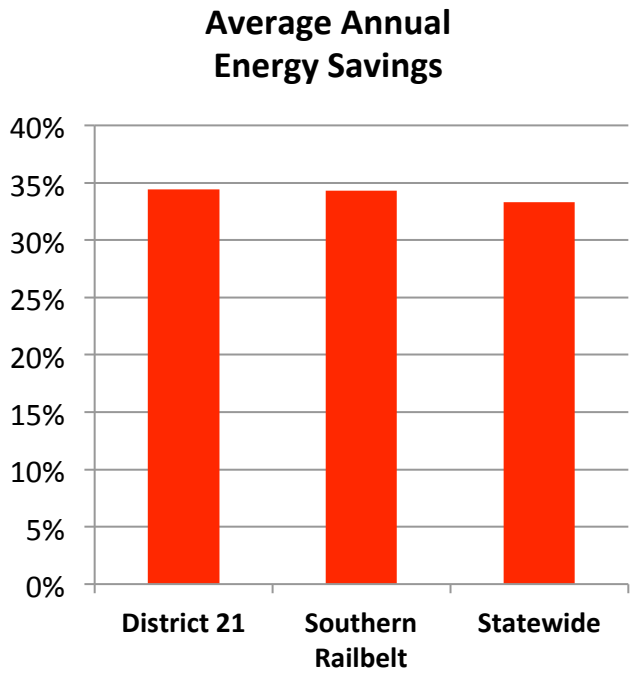
Per Home Averages

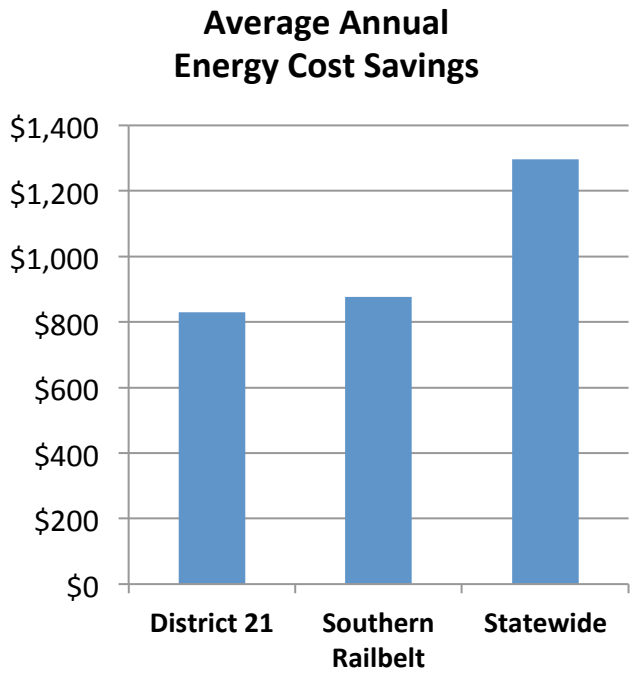
Energy Savings	34%
Cost Savings/home	$829

Total estimated BTUs saved in House District 21 are roughly equivalent to 791,458 therms of natural gas per year.

Of Note for House District 21:

- Annual cost savings from energy efficiency upgrades represent an estimated **$599,430**.
- The state's investment of nearly **$5.2 million will be repaid in just over 8.7 years** through homeowner cost savings, an annual return of 12%.
- AHFC has awarded **two "5 Star Plus"** new home construction rebates, equating to an additional $15,000 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated:
        - **76% energy reduction**
        - Yearly cost savings - **$3,734**
    - **Retrofit Actions:** improved the insulation in the floor and walls; replaced the garage door; and upgraded the heating and domestic hot water systems.





At 34% annual energy savings, homes in House District 21 are realizing energy savings slightly higher than the Statewide and Southern Railbelt averages. The amount of natural gas being conserved as a result of Home Energy Rebate program activity in District 21 is also significant. Energy savings are primarily attributed to heating system upgrades, air tightening, and increased ceiling insulation. Cost savings in District 21, like those of all of the Southern Railbelt are below the Statewide average due to the relatively low cost of natural gas, the dominant source of heat and electricity in this region.

Estimated Yearly Fuel Use Reductions in District 21	
Wood Use Reduction	188 cords
Coal Use Reduction	0 tons
Electric Use Reduction	254,072 kWh
Gas Use Reduction	735,027 therms
Oil 1/Oil 2 Use Reduction	0 gals
Propane Use Reduction	5,018 gals

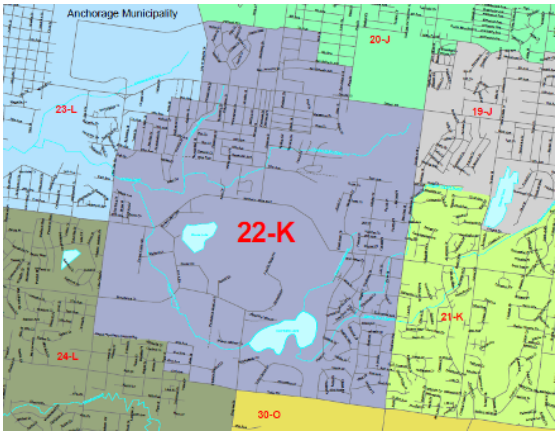
House District 21 realized an estimated annual reduction of 735,000 therms of natural gas. Electrical use was reduced by 4% in House District 21.

House District 22 – Anchorage: University/Airport Heights

Senate Representative: Bettye Davis (D)
House Representative: Sharon Cissna (D)

Description

House District 22 is located in Southcentral Alaska, on the railbelt, and experiences a transitional maritime climate with moderately cold winter temperatures. The primary fuel source is natural gas.



Home Energy Rebate Program Participation

# of Applications	651
Expired	135
In Process	100
Completed	416
Completion Rate	74%
Avg. Completion Time (mos.)	13.4
Average Home Age	42.5
Total Rebate Funds	$3.0
Average Rebate Amount	$6,505

Home Energy Rebate Program Outcomes
Estimated Yearly Savings

District Wide Totals

Energy Savings	42.1 billion BTU
Cost Savings	$305,290
CO2 Reduction	4.6 million LBS

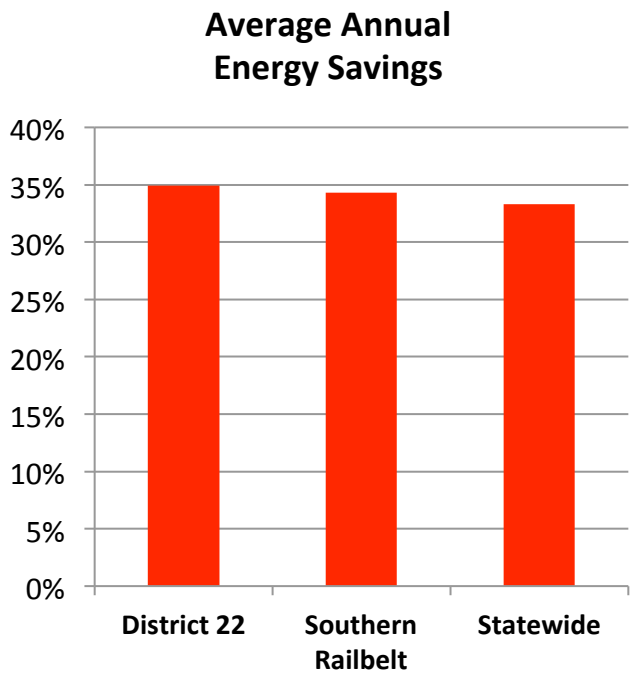
Per Home Averages

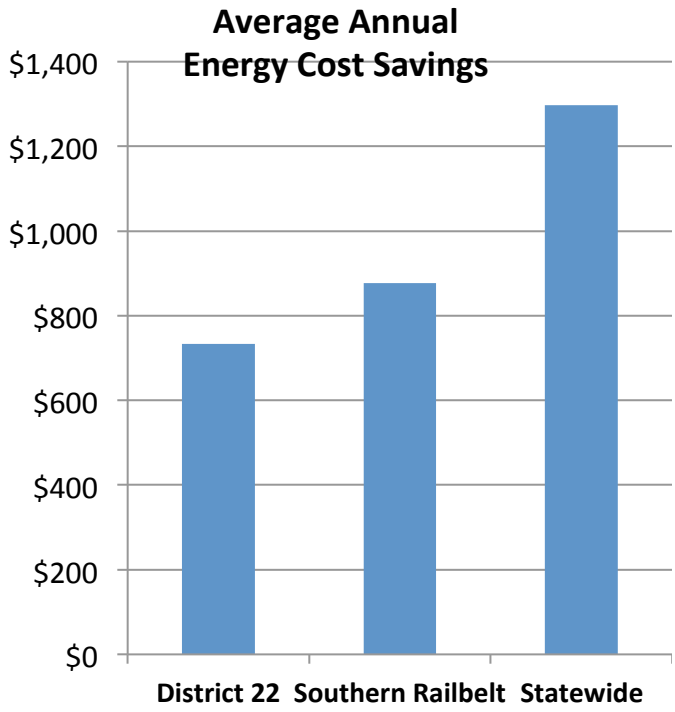
Energy Savings	35%
Cost Savings/home	$734

Total estimated BTUs saved in House District 22 are roughly equivalent to 420,658 therms of natural gas per year.

Of Note for House District 22:

- Annual cost savings from energy efficiency upgrades represent an estimated **$305,290**.
- The state's investment of nearly **$3.0 million will be repaid in less than 9.8 years** through homeowner cost savings, an annual return of 10%.
- AHFC has awarded **15 "5 Star Plus"** new home construction rebates, equating to an additional $112,500 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated:
        - **66% energy reduction**
        - Yearly cost savings - **$4,357**
    - **Retrofit Actions:** improved the insulation in the attic; replaced windows; installed a setback thermostat; upgraded the heating system; and changed primary heating fuels.





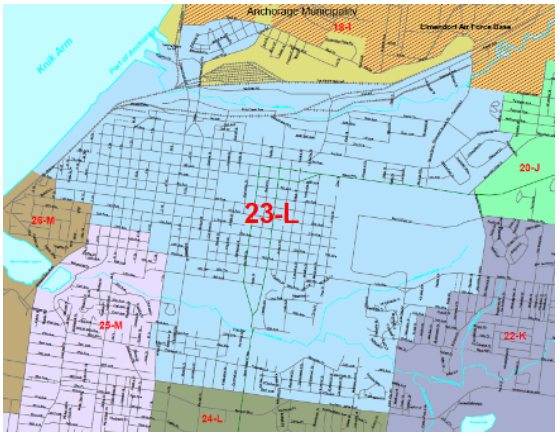
At 35% annual energy savings, homes in House District 22 are realizing energy savings on par with the Statewide and Southern Railbelt averages. The amount of natural gas being conserved as a result of Home Energy Rebate program activity in District 22 is also significant. Energy savings are primarily attributed to heating system upgrades, increased ceiling insulation, and window upgrades. Cost savings in District 22, like all Southern Railbelt communities, are below the Statewide average due to the relatively low cost of natural gas, the dominant source of heat and electricity in this region.

Estimated Yearly Fuel Use Reductions in District 22	
Wood Use Reduction	149 cords
Coal Use Reduction	0 tons
Electric Use Reduction	124,917 kWh
Gas Use Reduction	381,189 therms
Oil 1/Oil 2 Use Reduction	0 gals
Propane Use Reduction	0 gals

House District 22 realized an estimated annual reduction of 381,000 therms of natural gas. Electrical use was reduced by 4% in House District 22.

House District 23 – Anchorage: Downtown/Rogers Park

Senate Representative: Johnny Ellis (D)
House Representative: Les Gara (D)



Description

House District 23 is located in Southcentral Alaska, on the railbelt, and experiences a transitional maritime climate with moderately cold winter temperatures. The primary fuel source is natural gas.

Home Energy Rebate Program Participation

# of Applications	643
Expired	178
In Process	64
Completed	401
Completion Rate	68%
Avg. Completion Time (mos.)	12.9
Average Home Age	46.1
Total Rebate Funds	$2.8 million
Average Rebate Amount	$6,348

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	41.7 billion BTU
Cost Savings	$301,173
CO2 Reduction	4.8 million LBS

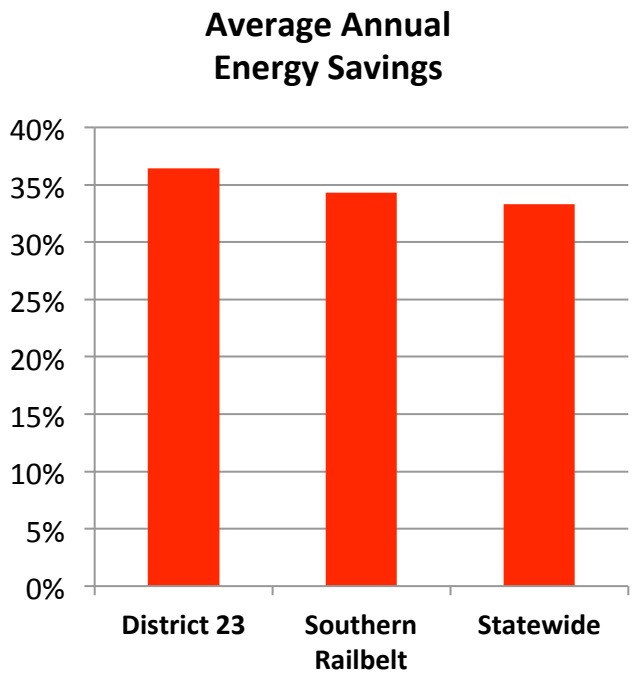
Per Home Averages

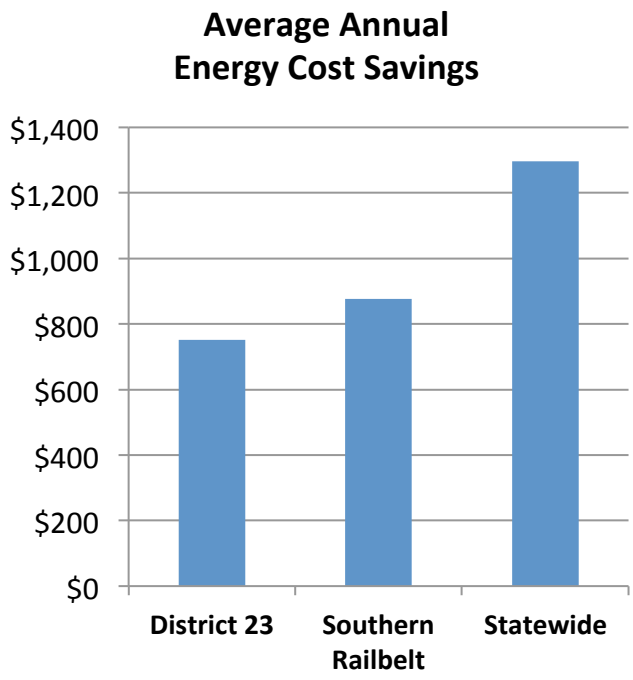
Energy Savings	36%
Cost Savings/home	$751

Total estimated BTUs saved in House District 23 are roughly equivalent to 417,045 therms of natural gas per year.

Of Note for House District 23:

- Annual cost savings from energy efficiency upgrades represent an estimated **$301,173**.
- It is estimated that the state's investment of over **$2.8 million will be repaid in just over 9.4 years** through homeowner cost savings, an annual return of 11%.
- AHFC has awarded **five "5 Star Plus"** new home construction rebates, equating to an additional $37,500 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
  - Estimated:
    - **31% energy reduction**
    - Yearly cost savings - **$5,878**
  - **Retrofit Actions:** improved the insulation in the ceiling; tightened the structure; upgraded the heating system; and changed primary fuel types.





At 36% annual energy savings, homes in House District 23 are realizing greater energy savings than the Statewide and Southern Railbelt averages. The amount of natural gas being conserved as a result of Home Energy Rebate program activity in District 23 is also significant. Energy savings are primarily attributed to domestic hot water and heating system upgrades, increased ceiling insulation, and window upgrades. Cost savings in District 23, like those of all of the Southern Railbelt, are below the Statewide average due to the relatively low cost of natural gas, the dominant source of heat and electricity in this region.

Estimated Yearly Fuel Use Reductions in District 23

Wood Use Reduction	50 cords
Coal Use Reduction	0 tons
Electric Use Reduction	135,149 kWh
Gas Use Reduction	396,351 therms
Oil 1/Oil 2 Use Reduction	1,921 gals
Propane Use Reduction	0 gals

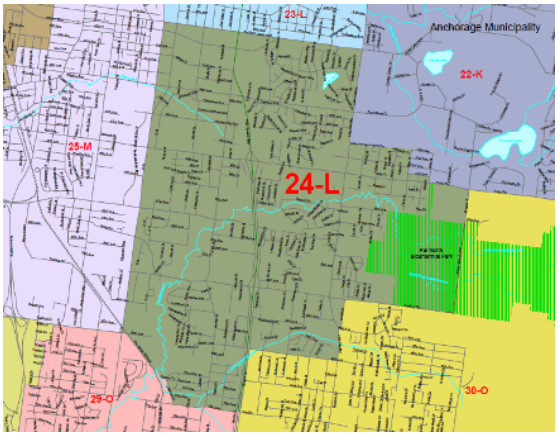
House District 23 realized an estimated annual reduction of 396,000 therms of natural gas. Electrical use was reduced by 4% in House District 23.

House District 24 – Anchorage: Midtown/Taku

Senate Representative: Johnny Ellis (D)
House Representative: Berta Gardner (D)

Description

House District 24 is located in Southcentral Alaska, on the railbelt, and experiences a transitional maritime climate with moderately cold winter temperatures. The primary fuel source is natural gas.



Home Energy Rebate Program Participation

# of Applications	735
Expired	187
In Process	88
Completed	460
Completion Rate	70%
Avg. Completion Time (mos.)	12.9
Average Home Age	39.5
Total Rebate Funds	$3.2 million
Average Rebate Amount	$6,311

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	52.3 billion BTU
Cost Savings	$376,626
CO2 Reduction	5.7 million LBS

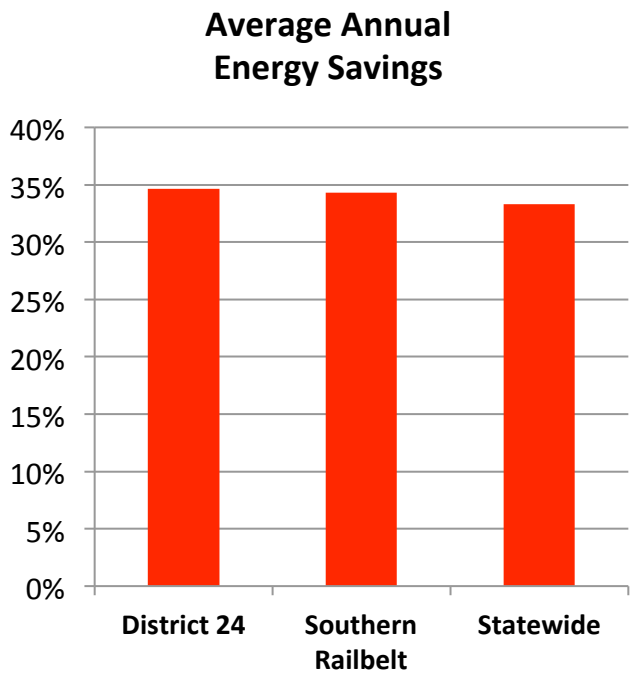
Per Home Averages

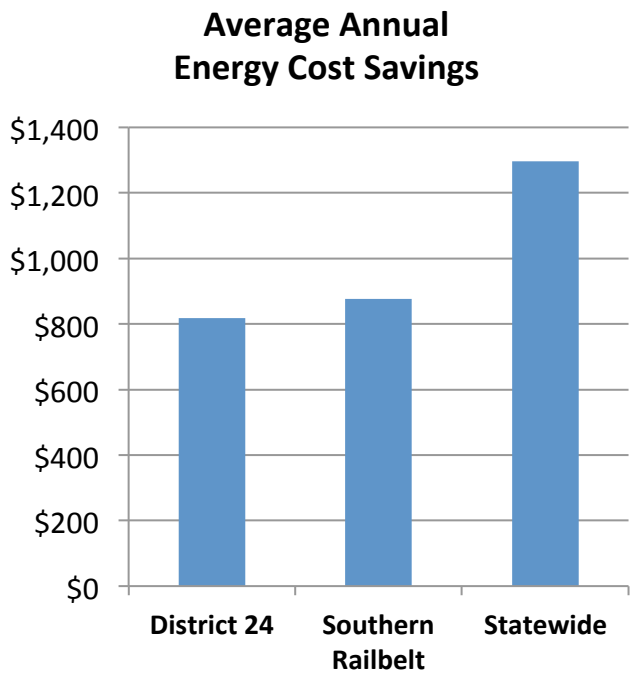
Energy Savings	35%
Cost Savings/home	$819

Total estimated BTUs saved in House District 24 are roughly equivalent to 522,791 therms of natural gas per year.

Of Note for House District 24:

- Annual cost savings from energy efficiency upgrades represent an estimated **$376,626**.
- It is estimated that the state's investment of over **$3.2 million will be repaid in just over 8.5 years** through homeowner cost savings, an annual return of 12%.
- AHFC has awarded **one "5 Star Plus"** new home construction rebate, equating to an additional $7,500 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
  - Estimated:
    - **76% energy reduction**
    - Yearly cost savings - **$6,909**
  - **Retrofit Actions:** insulated and tightened the structure, and upgraded the heating system.





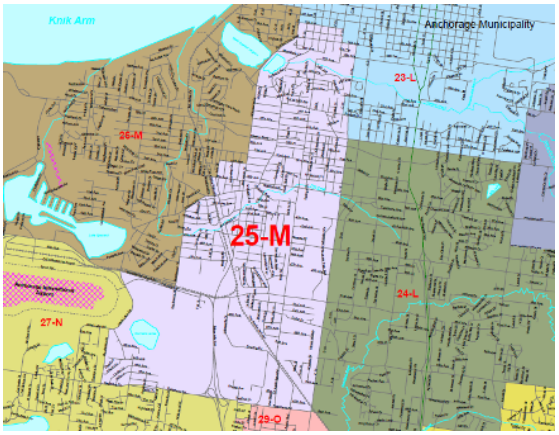
At 35% annual energy savings, homes in House District 24 are realizing energy savings on par with the Statewide and Southern Railbelt averages. The amount of natural gas being conserved as a result of Home Energy Rebate program activity in District 24 is also significant. Energy savings are primarily attributed to domestic hot water and heating system upgrades and increased ceiling insulation. Cost savings in District 24, like those of all Southern Railbelt communities, are below the Statewide average due to the relatively low cost of natural gas, the dominant source of heat and electricity in this region.

Estimated Yearly Fuel Use Reductions in District 24	
Wood Use Reduction	170 cords
Coal Use Reduction	0 tons
Electric Use Reduction	130,341 kWh
Gas Use Reduction	476,617 therms
Oil 1/Oil 2 Use Reduction	0 gals
Propane Use Reduction	0 gals

House District 24 realized an estimated annual reduction of 477,000 therms of natural gas. Electrical use was reduced by 3% in House District 24.

House District 25 – Anchorage: East Spenard

Senate Representative: Hollis French (D)
House Representative: Mike Doogan (D)



Description

House District 25 is located in Southcentral Alaska, on the railbelt, and experiences a transitional maritime climate with moderately cold winter temperatures. The primary fuel source is natural gas.

Home Energy Rebate Program Participation

# of Applications	576
Expired	168
In Process	61
Completed	347
Completion Rate	66%
Avg. Completion Time (mos.)	13.1
Average Home Age	45.6
Total Rebate Funds	$2.4 million
Average Rebate Amount	$6,237

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	36.3 billion BTU
Cost Savings	$279,638
CO2 Reduction	4.2 million LBS

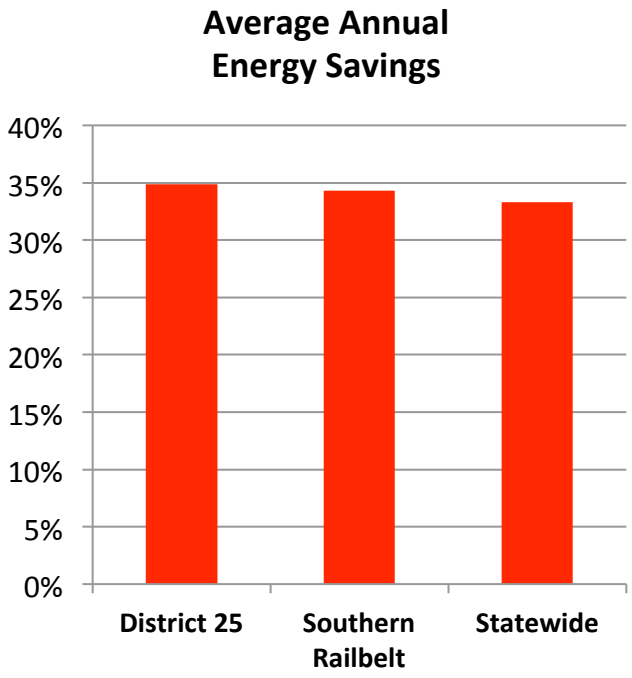
Per Home Averages

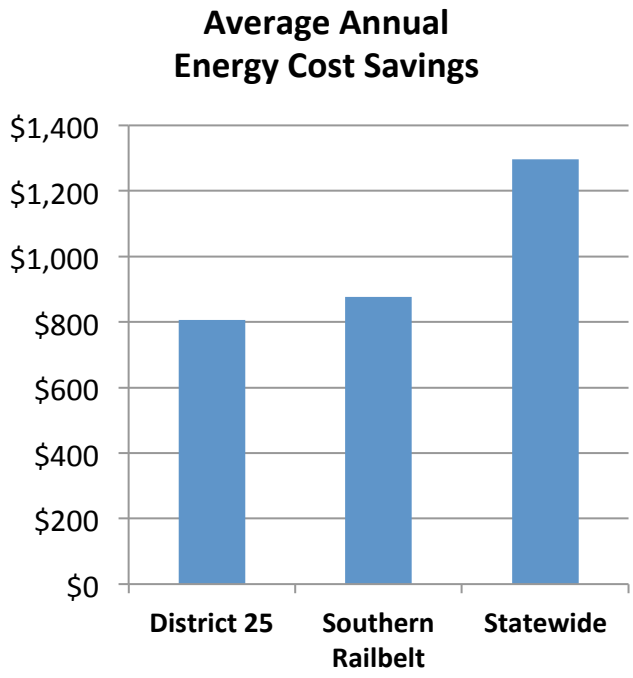
Energy Savings	35%
Cost Savings/home	$806

Total estimated BTUs saved in House District 25 are roughly equivalent to 363,481 therms of natural gas per year.

Of Note for House District 25:

- Annual cost savings from energy efficiency upgrades represent an estimated **$279,638**.
- It is estimated that the state's investment of over **$2.4 million will be repaid in less than 8.6 years** through homeowner cost savings, an annual return of 12%.
- AHFC has awarded **two "5 Star Plus"** new home construction rebates, equating to an additional $15,000 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated:
        - **92% energy reduction**
        - Yearly cost savings - **$12,489**
    - **Retrofit Actions:** insulated and tightened the structure; upgraded the heating and domestic hot water systems; and changed primary fuel type.





At 35% annual energy savings, homes in House District 25 are realizing energy savings on par with the Statewide and Southern Railbelt averages. The amount of natural gas being conserved as a result of Home Energy Rebate program activity in District 25 is also significant. Energy savings are primarily attributed to domestic hot water and heating system upgrades, air tightening, and increased ceiling insulation. Cost savings in District 25, like those of all Southern Railbelt communities, are below the Statewide average due to the relatively low cost of natural gas, the dominant source of heat and electricity in this region.

Estimated Yearly Fuel Use Reductions in District 25

Wood Use Reduction	36 cords
Coal Use Reduction	0 tons
Electric Use Reduction	129,615 kWh
Gas Use Reduction	346,247 therms
Oil 1/Oil 2 Use Reduction	0 gals
Propane Use Reduction	4,076 gals

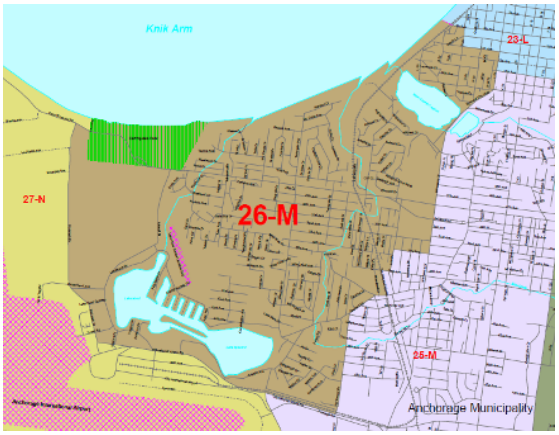
House District 25 realized an estimated annual reduction of 346,000 therms of natural gas. Electrical use was reduced by 5% in House District 25.

House District 26 – Anchorage: Turnagain/Inlet View

Senate Representative: Hollis French (D)
House Representative: Lindsey Holmes (D)

Description

House District 26 is located in Southcentral Alaska, on the railbelt, and experiences a transitional maritime climate with moderately cold winter temperatures. The primary fuel source is natural gas.



Home Energy Rebate Program Participation

# of Applications	1124
Expired	267
In Process	136
Completed	719
Completion Rate	72%
Avg. Completion Time (mos.)	13.0
Average Home Age	41.1
Total Rebate Funds	$5.0 million
Average Rebate Amount	$6,255

Home Energy Rebate Program Outcomes
Estimated Yearly Savings

District Wide Totals

Energy Savings	76.1 billion BTU
Cost Savings	$550,737
CO2 Reduction	8.7 million LBS

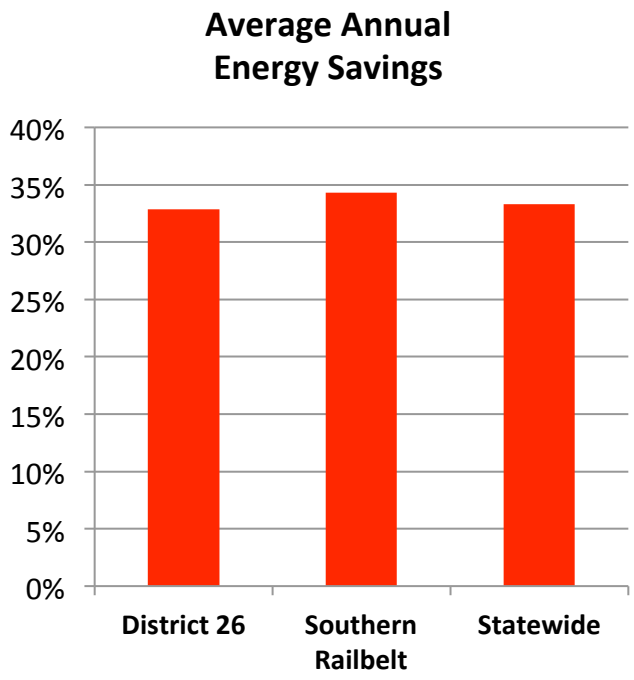
Per Home Averages

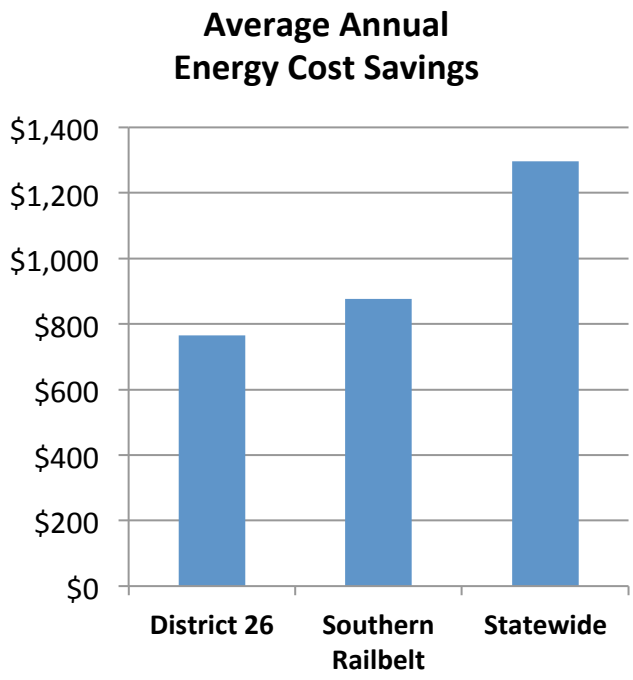
Energy Savings	33%
Cost Savings/home	$766

Total estimated BTUs saved in House District 26 are roughly equivalent to 760,589 therms of natural gas per year.

Of Note for House District 26:

- Annual cost savings from energy efficiency upgrades represent an estimated **$550,737**.
- The state's investment of nearly **$5.0 million will be repaid in less than 9.1 years** through homeowner cost savings, an annual return of 11%.
- **Highlighted Single Home Energy Rebate Retrofit:**
  - Estimated
    - **73% energy reduction**
    - Yearly cost savings - **$3,454**
  - **Retrofit Actions:** improved the insulation; tightened the structure; and upgraded the heating and domestic hot water systems.





At 33% annual energy savings, homes in House District 26 are realizing energy savings on par with the Statewide average and slightly below the Southern Railbelt average. The amount of natural gas being conserved as a result of Home Energy Rebate program activity in District 26 is also significant. Energy savings are primarily attributed to domestic hot water and heating system upgrades and increased ceiling insulation. Cost savings in District 26, like those of all Southern Railbelt communities, are below the Statewide average due to the relatively low cost of natural gas, the dominant source of heat and electricity in this region.

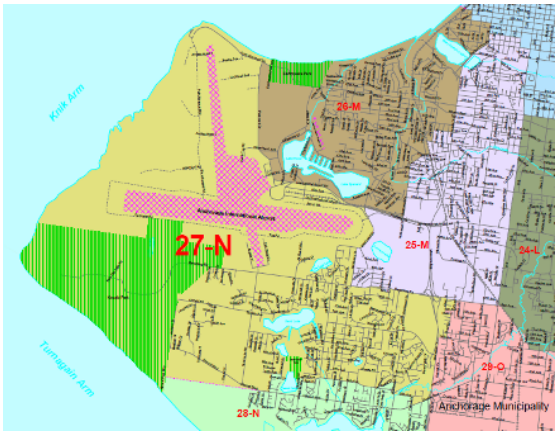
Estimated Yearly Fuel Use Reductions in District 26

Wood Use Reduction	112 cords
Coal Use Reduction	0 tons
Electric Use Reduction	290,093 kWh
Gas Use Reduction	721,634 therms
Oil 1/Oil 2 Use Reduction	1,023 gals
Propane Use Reduction	0 gals

House District 26 realized an estimated annual reduction of 722,000 therms of natural gas. Electrical use was reduced by 5% in House District 26.

House District 27 – Anchorage: Sand Lake

Senate Representative: Lesil McGuire (R)
House Representative: Mia Costello (R)



Description

House District 27 is located in Southcentral Alaska, on the railbelt, and experiences a transitional maritime climate with moderately cold winter temperatures. The primary fuel source is natural gas.

Home Energy Rebate Program Participation

# of Applications	1112
Expired	297
In Process	154
Completed	661
Completion Rate	68%
Avg. Completion Time (mos.)	12.5
Average Home Age	33.4
Total Rebate Funds	$4.6 million
Average Rebate Amount	$6,271

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	73.4 billion BTU
Cost Savings	$530,156
CO2 Reduction	8.4 million LBS

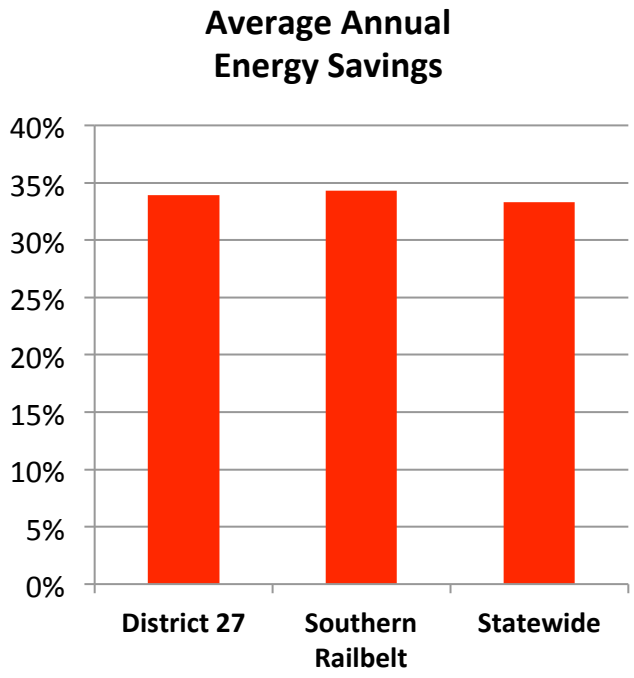
Per Home Averages

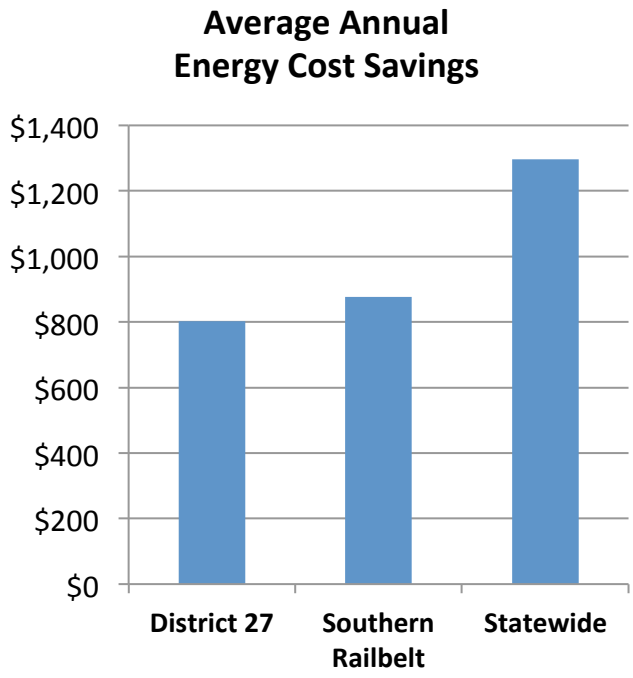
Energy Savings	34%
Cost Savings/home	$802

Total estimated BTUs saved in House District 27 are roughly equivalent to 733,568 therms of natural gas per year.

Of Note for House District 27:

- Annual cost savings from energy efficiency upgrades represent an estimated **$530,156**.
- It is estimated that the state's investment of over **$4.6 million will be repaid in just over 8.7 years** through homeowner cost savings, an annual return of 11%.
- AHFC has awarded **14 "5 Star Plus"** new home construction rebates, equating to an additional $105,000 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
  - Estimated
    - **26% energy reduction**
    - Yearly cost savings - **$5,083**
  - **Retrofit Actions:** insulated and tightened the structure; upgraded the heating system; and changed the primary heating fuel.





At 34% annual energy savings, homes in House District 27 are realizing energy savings on par with the Statewide and the Southern Railbelt averages. The amount of natural gas being conserved as a result of Home Energy Rebate program activity in District 27 is also significant. Energy savings are primarily attributed to domestic hot water and heating system upgrades, air tightening, and window upgrades. Cost savings in District 27, like those of all Southern Railbelt communities, are below the Statewide average due to the relatively low cost of natural gas, the dominant source of heat and electricity in this region.

Estimated Yearly Fuel Use Reductions in District 27	
Wood Use Reduction	116 cords
Coal Use Reduction	0 tons
Electric Use Reduction	266,817 kWh
Gas Use Reduction	696,655 therms
Oil 1/Oil 2 Use Reduction	0 gals
Propane Use Increase	304 gals

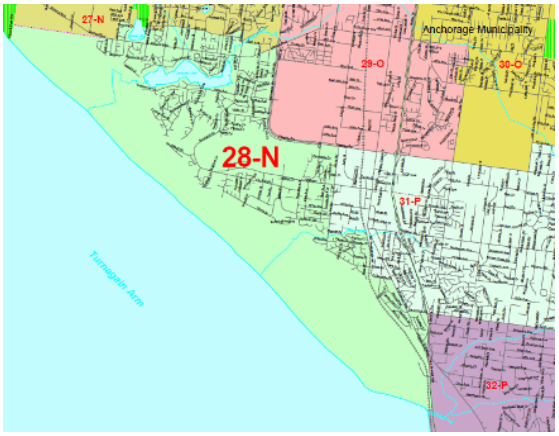
House District 27 realized an estimated annual reduction of 697,000 therms of natural gas. Electrical use was reduced by 5% in House District 27.

House District 28 – Anchorage: Bayshore/Klatt

Senate Representative: Lesil McGuire (R)
House Representative: Craig Johnson (R)

Description

House District 28 is located in Southcentral Alaska, on the railbelt, and experiences a transitional maritime climate with moderately cold winter temperatures. The primary fuel source is natural gas.



Home Energy Rebate Program Participation

# of Applications	1374
Expired	354
In Process	188
Completed	832
Completion Rate	69%
Avg. Completion Time (mos.)	12.6
Average Home Age	31.2
Total Rebate Funds	$5.7 million
Average Rebate Amount	$6,095

Home Energy Rebate Program Outcomes
Estimated Yearly Savings
District Wide Totals

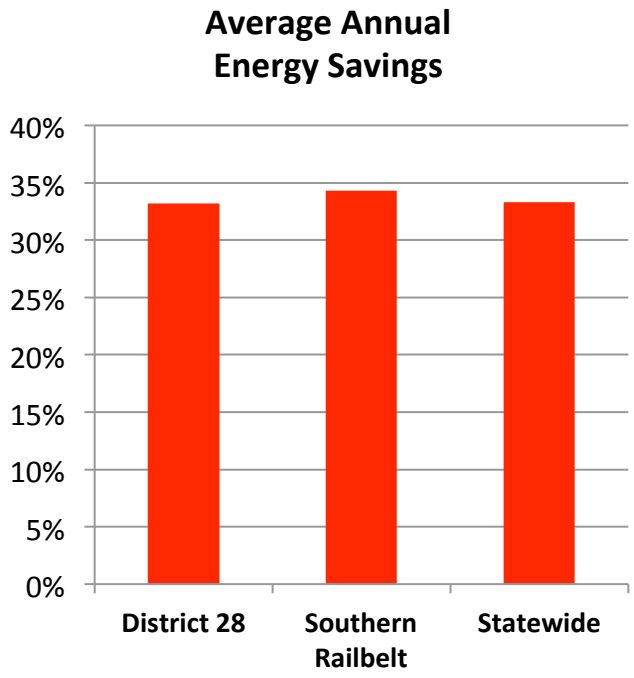
Energy Savings	96.1 billion BTU
Cost Savings	$686,530
CO2 Reduction	11.1 million LBS

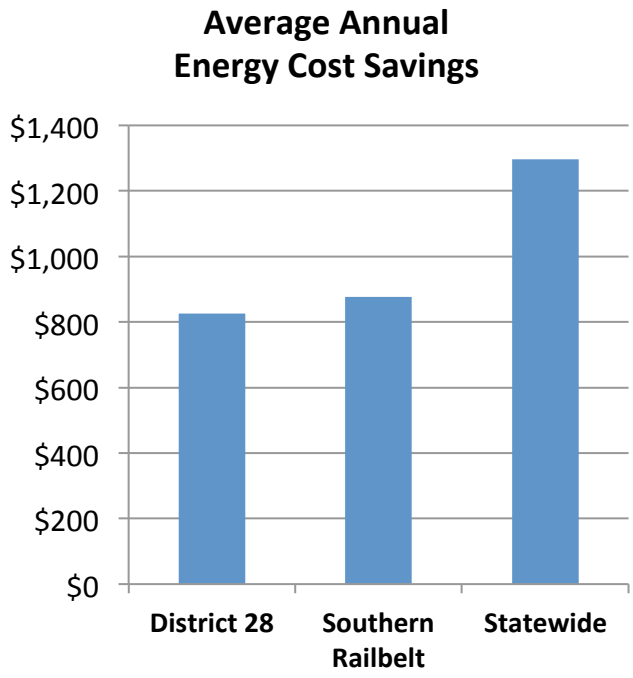
Per Home Averages	
Energy Savings	33%
Cost Savings/home	$825

Total estimated BTUs saved in House District 28 are roughly equivalent to 961,464 therms of natural gas per year.

Of Note for House District 28:

- Annual cost savings from energy efficiency upgrades represent an estimated **$686,530**.
- The state's investment of nearly **$5.7 million will be repaid in just over 8.2 years** through homeowner cost savings, an annual return of 12%.
- AHFC has awarded **one "5 Star Plus"** new home construction rebate, equating to an additional $7,500 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated
        - **69% energy reduction**
        - Yearly cost savings - **$4,581**
    - **Retrofit Actions:** improved the insulation of the below-grade walls and ceiling; tightened the structure; and upgraded the heating and domestic hot water systems.





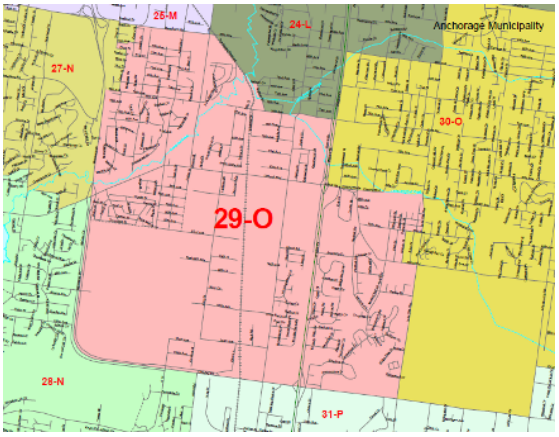
At 33% annual energy savings, homes in House District 28 are realizing energy savings on par with the Statewide and the Southern Railbelt averages. The amount of natural gas being conserved as a result of Home Energy Rebate program activity in District 28 is also significant. Energy savings are primarily attributed to domestic hot water and heating system upgrades and air tightening. Cost savings in District 28, like those of all Southern Railbelt communities, are below the Statewide average due to the relatively low cost of natural gas, the dominant source of heat and electricity in this region. In terms of total energy reduction, District 28 is in the top five districts in the state.

Estimated Yearly Fuel Use Reductions in District 28	
Wood Use Reduction	106 cords
Coal Use Reduction	0 tons
Electric Use Reduction	373,143 kWh
Gas Use Reduction	925,929 therms
Oil 1/Oil 2 Use Reduction	0 gals
Propane Use Increase	1,923 gals

House District 28 realized an estimated annual reduction of 926,000 therms of natural gas. Electrical use was reduced by 5% in House District 28.

House District 29 – Anchorage: Campbell/Independence Park

Senate Representative: Kevin Meyer (R)
House Representative: Chris Tuck (D)



Description

House District 29 is located in Southcentral Alaska, on the railbelt, and experiences a transitional maritime climate with moderately cold winter temperatures. The primary fuel source is natural gas.

Home Energy Rebate Program Participation

# of Applications	655
Expired	200
In Process	86
Completed	369
Completion Rate	63%
Avg. Completion Time (mos.)	12.4
Average Home Age	29.7
Total Rebate Funds	$2.6 million
Average Rebate Amount	$6,235

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	34.0 billion BTU
Cost Savings	$250,412
CO2 Reduction	3.8 million LBS

Per Home Averages

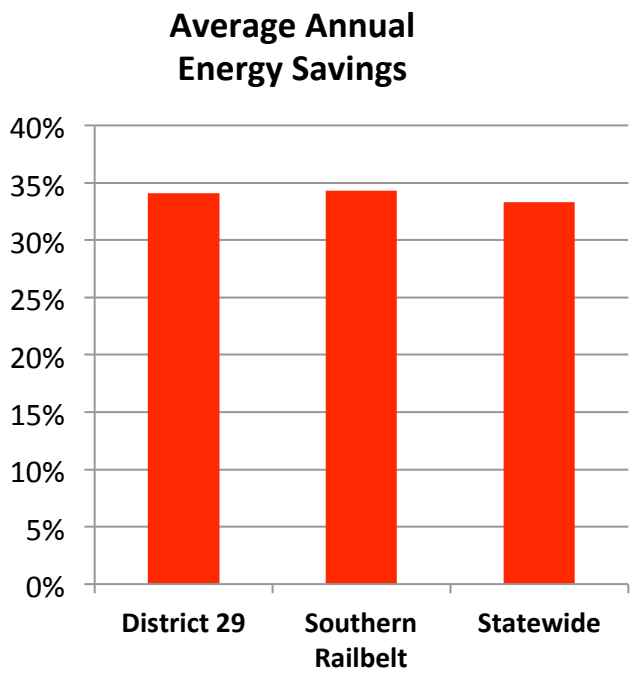
Energy Savings	34%
Cost Savings/home	$679

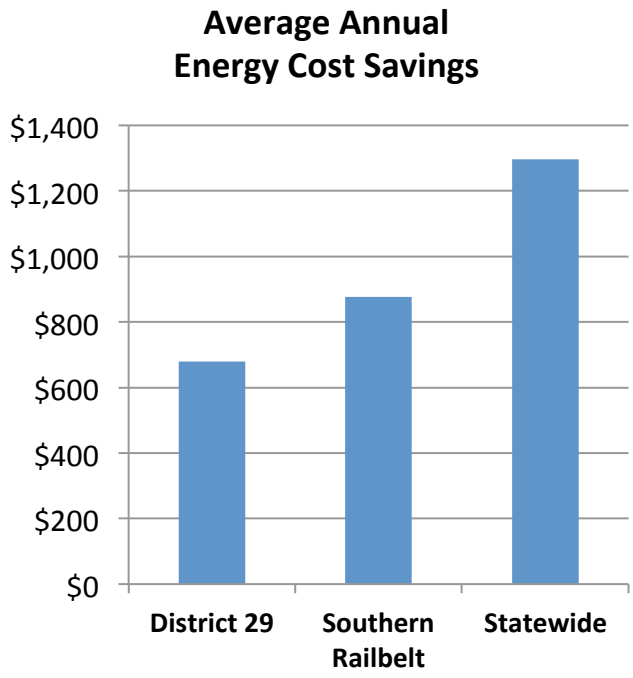
Total estimated BTUs saved in House District 29 are roughly equivalent to 340,428 therms of natural gas per year.

Of Note for House District 29:

- Annual cost savings from energy efficiency upgrades represent an estimated **$250,412**.
- The state's investment of nearly **$2.6 million will be repaid in just over 10.3 years** through homeowner cost savings, an annual return of 10%.

- **Highlighted Single Home Energy Rebate Retrofit:**
  - Estimated
    - **64% energy reduction**
    - Yearly cost savings - **$2,638**
  - **Retrofit Actions:** upgraded the heating system and changed the primary heating fuel.





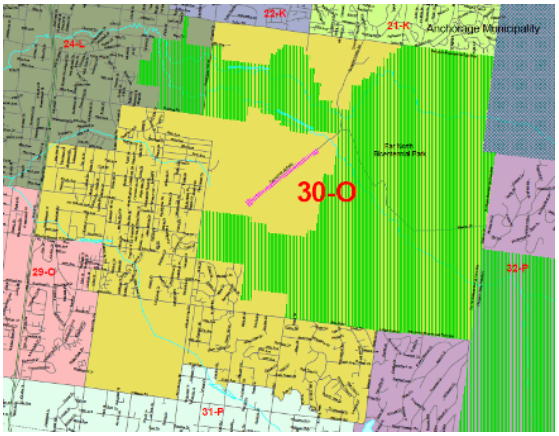
At 33% annual energy savings, homes in House District 29 are realizing energy savings on par with the Statewide and Southern Railbelt averages. The amount of natural gas being conserved as a result of Home Energy Rebate program activity in District 29 is also significant. Energy savings are primarily attributed to domestic hot water and heating system upgrades, air tightening, and increased ceiling insulation. Cost savings in District 29, like those of all Southern Railbelt communities, are below the Statewide average due to the relatively low cost of natural gas, the dominant source of heat and electricity in this region.

Estimated Yearly Fuel Use Reductions in District 29	
Wood Use Reduction	78 cords
Coal Use Reduction	0 tons
Electric Use Reduction	135,332 kWh
Gas Use Reduction	316,987 therms
Oil 1/Oil 2 Use Reduction	0 gals
Propane Use Reduction	185 gals

House District 29 realized an estimated annual reduction of 317,000 therms of natural gas. Electrical use was reduced by 5% in House District 29.

House District 30 – Anchorage: Lore/Abbott

Senate Representative: Kevin Meyer (R)
House Representative: Charisse Millett (R)



Description

House District 30 is located in Southcentral Alaska, on the railbelt, and experiences a transitional maritime climate with moderately cold winter temperatures. The primary fuel source is natural gas.

Home Energy Rebate Program Participation

# of Applications	1158
Expired	282
In Process	148
Completed	728
Completion Rate	71%
Avg. Completion Time (mos.)	12.4
Average Home Age	29.0
Total Rebate Funds	$5.0 million
Average Rebate Amount	$6,155

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	76.6 billion BTU
Cost Savings	$559,192
CO2 Reduction	8.6 million LBS

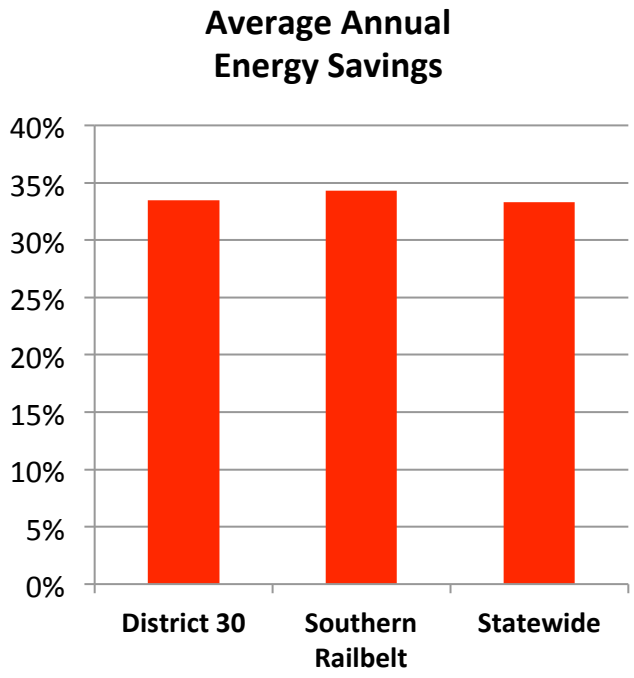
Per Home Averages

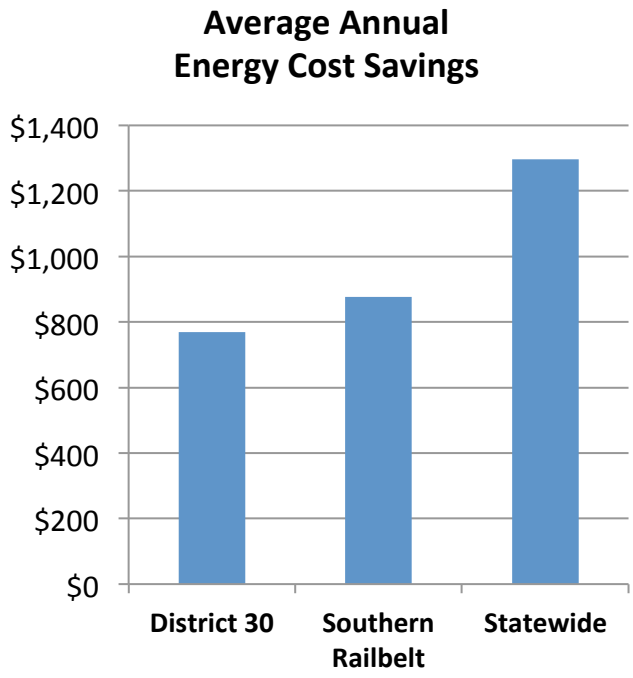
Energy Savings	33%
Cost Savings/home	$768

Total estimated BTUs saved in House District 30 are roughly equivalent to 766,266 therms of natural gas per year.

Of Note for House District 30:

- Annual cost savings from energy efficiency upgrades represent an estimated **$559,192**.
- The state's investment of nearly **$5.0 million will be repaid in just over 8.9 years** through homeowner cost savings, an annual return of 11%.
- AHFC has awarded **16 "5 Star Plus"** new home construction rebates, equating to an additional $120,000 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated
        - **72% energy reduction**
        - Yearly cost savings - **$4,907**
    - **Retrofit Actions:** tightened the structure; upgraded the heating system; and changed the primary heating fuel.





At 33% annual energy savings, homes in House District 30 are realizing energy savings on par with the Statewide and Southern Railbelt averages. The amount of natural gas being conserved as a result of Home Energy Rebate program activity in District 30 is also significant. Energy savings are primarily attributed to domestic hot water and heating system upgrades and air tightening. Cost savings in District 30, like those of all Southern Railbelt communities, are below the Statewide average due to the relatively low cost of natural gas, the dominant source of heat and electricity in this region.

Estimated Yearly Fuel Use Reductions in District 30	
Wood Use Reduction	187 cords
Coal Use Reduction	0 tons
Electric Use Reduction	269,688 kWh
Gas Use Reduction	712,765 therms
Oil 1/Oil 2 Use Reduction	0 gals
Propane Use Reduction	31 gals

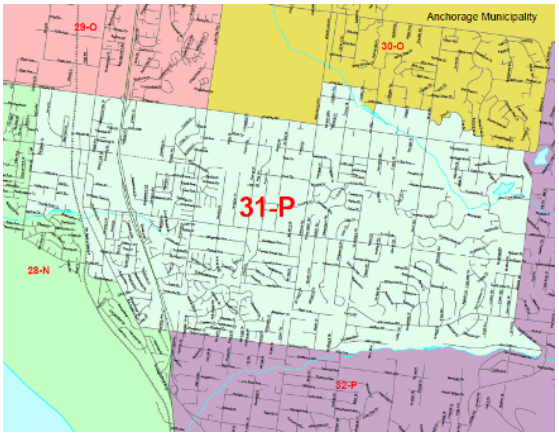
House District 30 realized an estimated annual reduction of 713,000 therms of natural gas. Electrical use was reduced by 4% in House District 30.

House District 31 – Anchorage: Huffman/Ocean View

Senate Representative: Cathy Giessel (R)
House Representative: Bob Lynn (R)

Description

House District 31 is located in Southcentral Alaska, on the railbelt, and experiences a transitional maritime climate with moderately cold winter temperatures. The primary fuel source is natural gas.



Home Energy Rebate Program Participation

# of Applications	1515
Expired	356
In Process	176
Completed	980
Completion Rate	72%
Avg. Completion Time (mos.)	12.7
Average Home Age	31.2
Total Rebate Funds	$7.0 million
Average Rebate Amount	$6,428

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	130.9 billion BTU
Cost Savings	$971,425
CO2 Reduction	14.4 million LBS

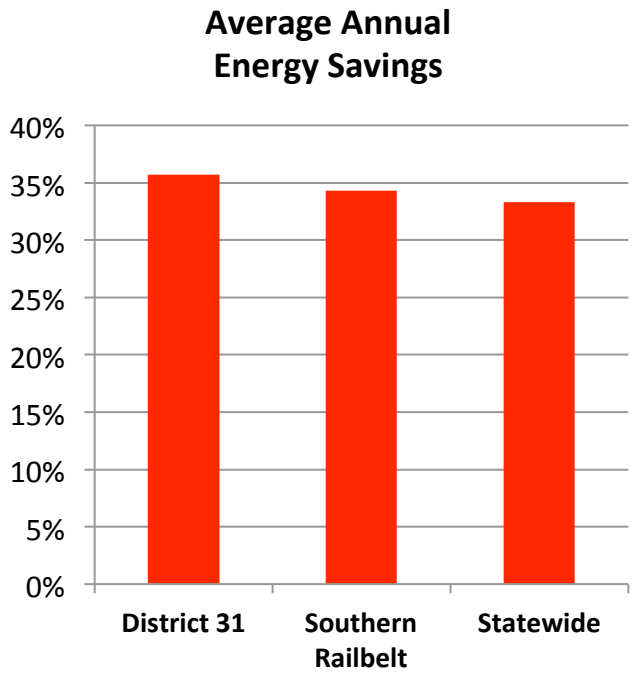
Per Home Averages

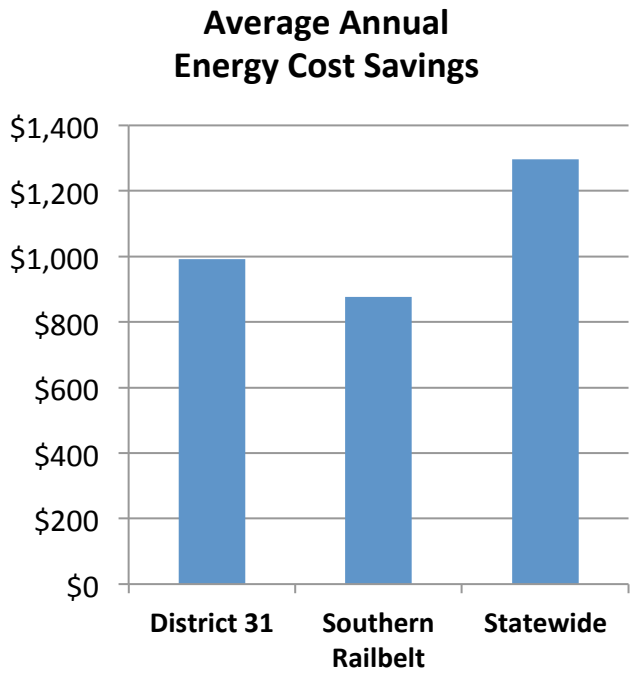
Energy Savings	36%
Cost Savings/home	$991

Total estimated BTUs saved in House District 31 are roughly equivalent to 1,309,239 therms of natural gas per year.

Of Note for House District 31:

- Annual cost savings from energy efficiency upgrades represent an estimated **$971,425**.
- The state's investment of nearly **$7.0 million will be repaid in just over 7.2 years** through homeowner cost savings, an annual return of 14%.
- AHFC has awarded **10 "5 Star Plus"** new home construction rebates, equating to an additional $75,000 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated
        - **53% energy reduction**
        - Yearly cost savings - **$24,396**
    - **Retrofit Actions:** tightened the structure, installed night setback thermostat, replaced the garage door, and upgraded the heating system.





At 36% annual energy savings, homes in House District 31 are realizing energy savings slightly higher than the Statewide and Southern Railbelt averages. The amount of natural gas being conserved as a result of Home Energy Rebate program activity in District 31 is also significant. District 31 had the largest total energy reduction of all districts in the state. Energy savings are primarily attributed to domestic hot water and heating system upgrades and air tightening. Cost savings in District 31, like those of all Southern Railbelt communities, are below the Statewide average due to the relatively low cost of natural gas, the dominant source of heat and electricity in this region.

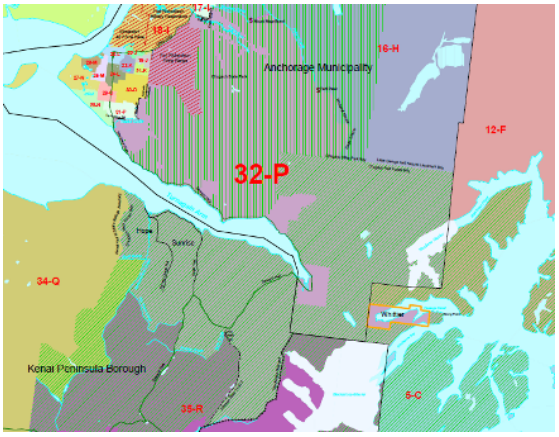
Estimated Yearly Fuel Use Reductions in District 31

Wood Use Reduction	369 cords
Coal Use Reduction	0 tons
Electric Use Reduction	304,129 kWh
Gas Use Reduction	1,209,403 therms
Oil 1/Oil 2 Use Reduction	0 gals
Propane Use Reduction	5,538 gals

House District 31 realized an estimated annual reduction of 1.2 million therms of natural gas. Electrical use was reduced by 3% in House District 31.

House District 32 – Chugach State Park

Senate Representative: Cathy Giessel (R)
House Representative: Mike Hawker (R)



Description

House District 32 is located in Southcentral Alaska, on the railbelt, and experiences a transitional maritime climate with moderately cold winter temperatures. The primary fuel source is natural gas.

Home Energy Rebate Program Participation

# of Applications	1286
Expired	369
In Process	155
Completed	760
Completion Rate	66%
Avg. Completion Time (mos.)	12.6
Average Home Age	30.4
Total Rebate Funds	$5.1 million
Average Rebate Amount	$5,990

Home Energy Rebate Program Outcomes
Estimated Yearly Savings

District Wide Totals

Energy Savings	96.3 billion BTU
Cost Savings	$856,338
CO2 Reduction	11.7 million LBS

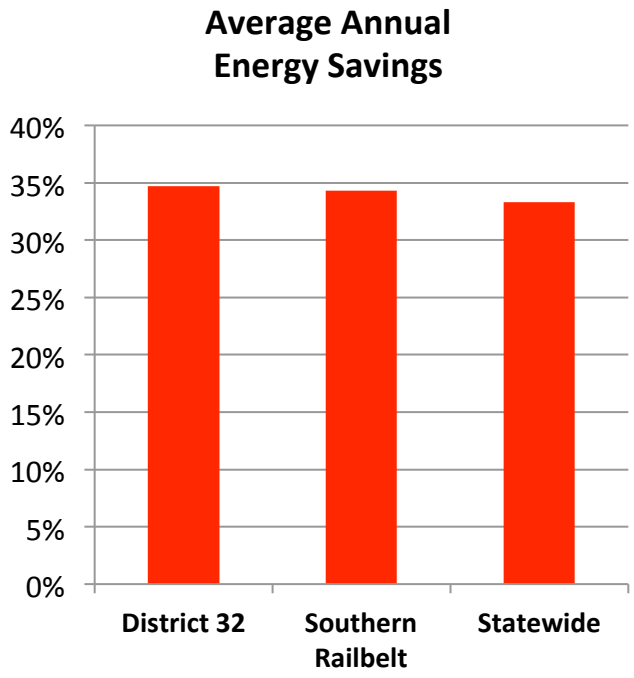
Per Home Averages

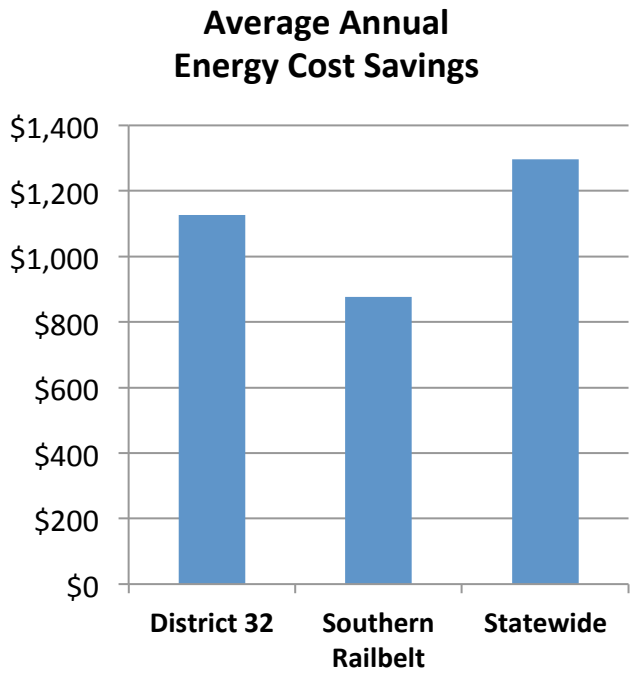
Energy Savings	35%
Cost Savings/home	$1,127

Total estimated BTUs saved in House District 32 are roughly equivalent to 962,503 therms of natural gas per year.

Of Note for House District 32:

- Annual cost savings from energy efficiency upgrades represent an estimated **$856,338**.
- It is estimated that the state's investment of over **$5.1 million will be repaid in just over 6.0 years** through homeowner cost savings, an annual return of 17%.
- AHFC has awarded **15 "5 Star Plus"** new home construction rebates, equating to an additional $112,500 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
  - Estimated
    - **81% energy reduction**
    - Yearly cost savings - **$7,378**
  - **Retrofit Actions:** improved the insulation in the walls and ceiling.





At 35% annual energy savings, homes in House District 32 are realizing energy savings on par with the Statewide and Southern Railbelt averages. The amount of natural gas being conserved as a result of Home Energy Rebate program activity in District 32 is also significant. District 32 had the second largest total energy reduction of all districts in the state. Energy savings are primarily attributed to domestic hot water and heating system upgrades and air tightening. Cost savings in District 32, like those of all Southern Railbelt communities, are below the Statewide average due to the relatively low cost of natural gas, the dominant source of heat and electricity in this region.

Estimated Yearly Fuel Use Reductions in District 32	
Wood Use Reduction	142 cords
Coal Use Reduction	0 tons
Electric Use Reduction	1,270,368 kWh
Gas Use Reduction	864,623 therms
Oil 1/Oil 2 Use Reduction	11,054 gals
Propane Use Reduction	6,443 gals

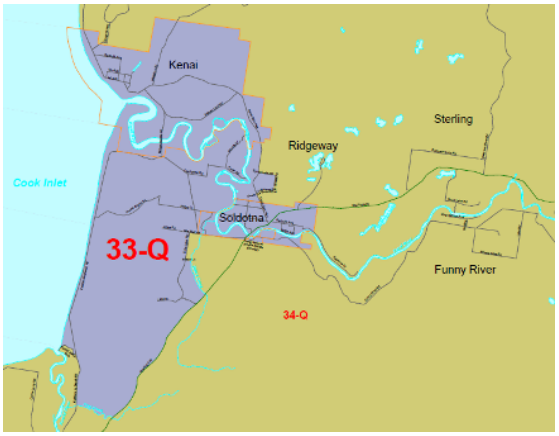
House District 32 realized an estimated annual reduction of 865,000 therms of natural gas. Electrical use was reduced by 15% in House District 32.

House District 33 – Kenai/Soldotna

Senate Representative: Thomas Wagoner (R)
House Representative: Kurt Olson (R)

Description

House District 33 is located in Southcentral Alaska, on the railbelt, and experiences a maritime climate with moderate winter temperatures. The primary fuel source is natural gas.



Home Energy Rebate Program Participation

# of Applications	924
Expired	265
In Process	89
Completed	567
Completion Rate	67%
Avg. Completion Time (mos.)	11.4
Average Home Age	30.0
Total Rebate Funds	$4.0 million
Average Rebate Amount	$6,265

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	56.5 billion BTU
Cost Savings	$517,863
CO2 Reduction	7.0 million LBS

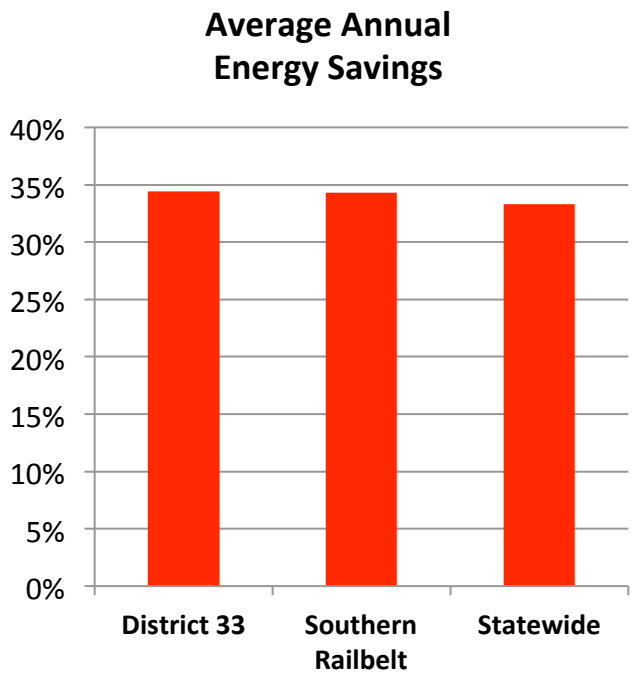
Per Home Averages

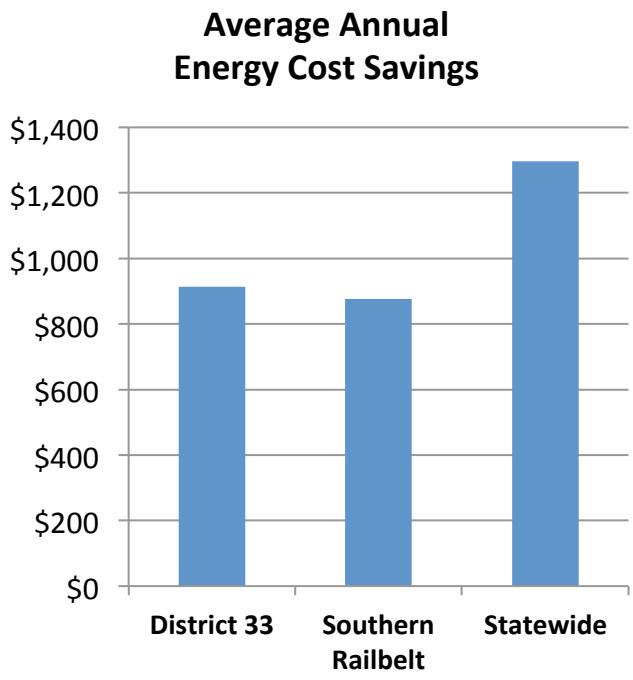
Energy Savings	34%
Cost Savings/home	$913

Total estimated BTUs saved in House District 33 are roughly equivalent to 565,158 therms of natural gas per year.

Of Note for House District 33:

- Annual cost savings from energy efficiency upgrades represent an estimated **$517,863**.
- The state's investment of nearly **$4.0 million will be repaid in less than 7.6 years** through homeowner cost savings, an annual return of 13%.
- AHFC has awarded **93 "5 Star Plus"** new home construction rebates, equating to an additional $697,500 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated
        - **45% energy reduction**
        - Yearly cost savings - **$9,311**
    - **Retrofit Actions:** insulated and tightened the structure and changed the primary heating fuel type.





At 34% annual energy savings, homes in House District 33 are realizing energy savings on par with the Statewide and Southern Railbelt averages. The amount of natural gas being conserved as a result of Home Energy Rebate program activity in District 32 is also significant. Energy savings are primarily attributed to domestic hot water and heating system upgrades, air tightening, and window upgrades. Cost savings in District 33, like those of all Southern Railbelt communities, are below the Statewide average due to the relatively low cost of natural gas, the dominant source of heat and electricity in this region.

Estimated Yearly Fuel Use Reductions in District 33	
Wood Use Reduction	40 cords
Coal Use Reduction	0 tons
Electric Use Reduction	462,823 kWh
Gas Use Reduction	502,246 therms
Oil 1/Oil 2 Use Reduction	27,063 gals
Propane Use Reduction	2,051 gals

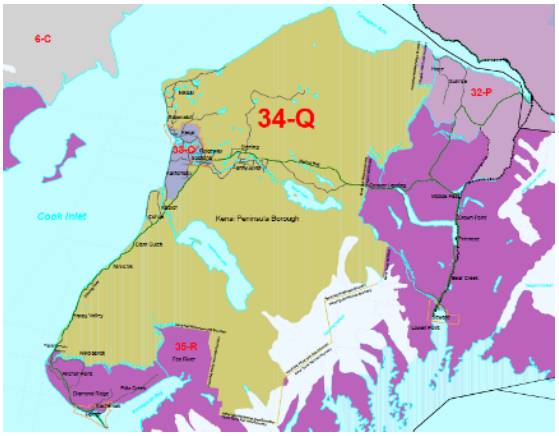
House District 33 realized an estimated annual reduction of 502,000 therms of natural gas. Electrical use was reduced by 10% in House District 33.

House District 34 – Rural Kenai

Senate Representative: Thomas Wagoner (R)
House Representative: Mike Chenault (R)

Description

House District 34 is located in Southcentral Alaska, on the railbelt, and experiences a maritime climate with moderate winter temperatures. Primary fuel sources are natural gas and oil.



Home Energy Rebate Program Participation

# of Applications	606
Expired	182
In Process	58
Completed	365
Completion Rate	65%
Avg. Completion Time (mos.)	12.1
Average Home Age	26.4
Total Rebate Funds	$2.4 million
Average Rebate Amount	$5,826

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	33.6 billion BTU
Cost Savings	$460,443
CO2 Reduction	4.3 million LBS

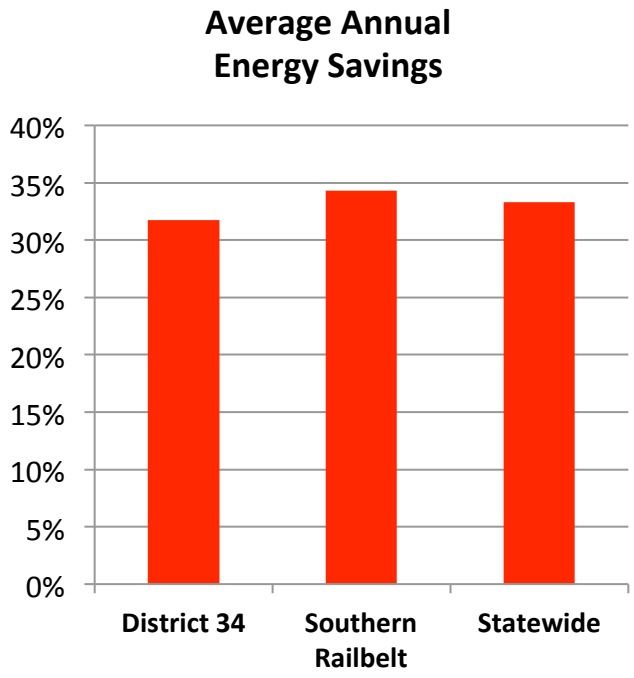
Per Home Averages

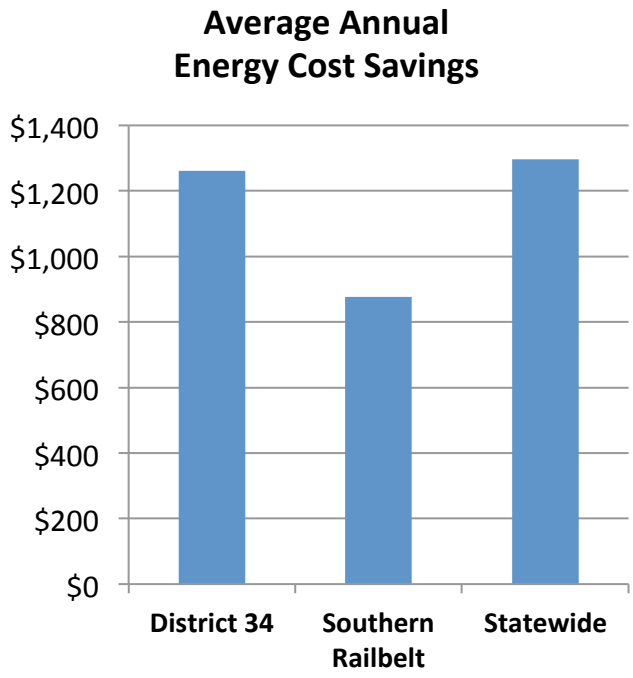
Energy Savings	32%
Cost Savings/home	$1,261

Total estimated BTUs saved in House District 34 are roughly equivalent to 336,249 therms of natural gas per year.

Of Note for House District 34:

- Annual cost savings from energy efficiency upgrades represent an estimated **$460,443**.
- The state's investment of nearly **$2.4 million will be repaid in less than 5.2 years** through homeowner cost savings, an annual return of 19%.
- AHFC has awarded **38 "5 Star Plus"** new home construction rebates, equating to an additional $285,000 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated
        - **62% energy reduction**
        - Yearly cost savings - **$9,680**
    - **Retrofit Actions:** insulated and tightened the structure; upgraded the heating and domestic hot water systems; and changed the primary fuel type.





At 32% annual energy savings, homes in House District 34 are realizing energy savings slightly below the Statewide and Southern Railbelt averages. Cost savings are greater in District 34 than the Southern Railbelt average and comparable to the Statewide average, due largely to fewer homes having access to affordable natural gas. Only half of HERP homes in District 34 heat with natural gas, nearly one quarter are on heating oil, and the other quarter rely on other fuels such as electricity, wood, and propane. Energy savings are primarily attributed to heating system upgrades, increased ceiling insulation, and window upgrades.

Estimated Yearly Fuel Use Reductions in District 34

Wood Use Reduction	206 cords
Coal Use Reduction	0 tons
Electric Use Reduction	802,309 kWh
Gas Use Reduction	191,932 therms
Oil 1/Oil 2 Use Reduction	53,759 gals
Propane Use Reduction	109 gals

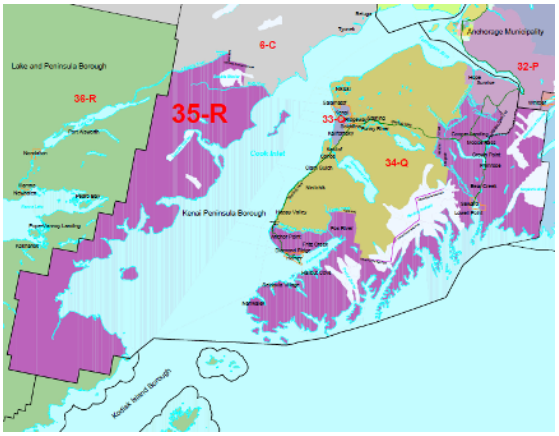
House District 34 realized an estimated annual reduction of 192,000 therms of natural gas. Electrical use was reduced by 21% in House District 34.

House District 35 – Homer/Seward

Senate Representative: Gary Stevens (R)
House Representative: Paul Seaton (R)

Description

House District 35 is located in Southcentral Alaska, on the railbelt, and experiences a maritime climate with moderate winter temperatures. Primary fuel sources are oil, electricity generated from natural gas and hydro, and firewood.



Home Energy Rebate Program Participation

# of Applications	719
Expired	284
In Process	55
Completed	379
Completion Rate	56%
Avg. Completion Time (mos.)	13.9
Average Home Age	30.2
Total Rebate Funds	$2.4 million
Average Rebate Amount	$5,446

Home Energy Rebate Program Outcomes
Estimated Yearly Savings

District Wide Totals

Energy Savings	21.2 billion BTU
Cost Savings	$558,199
CO2 Reduction	3.3 million LBS

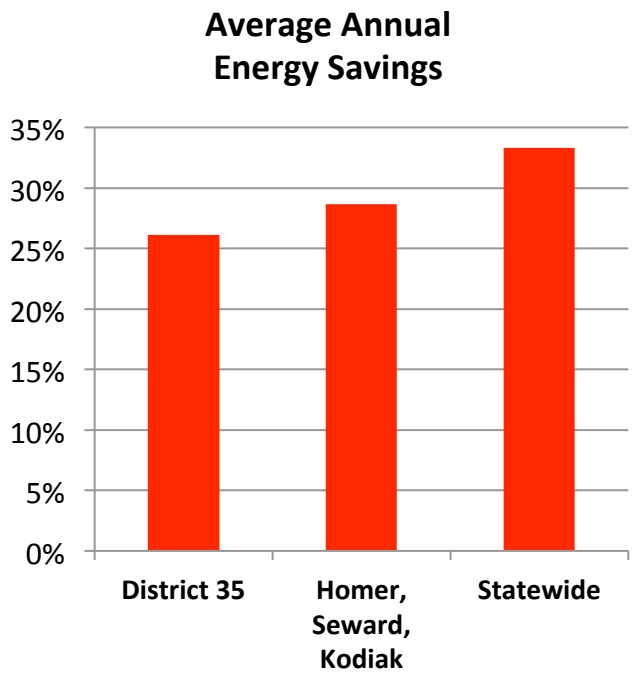
Per Home Averages

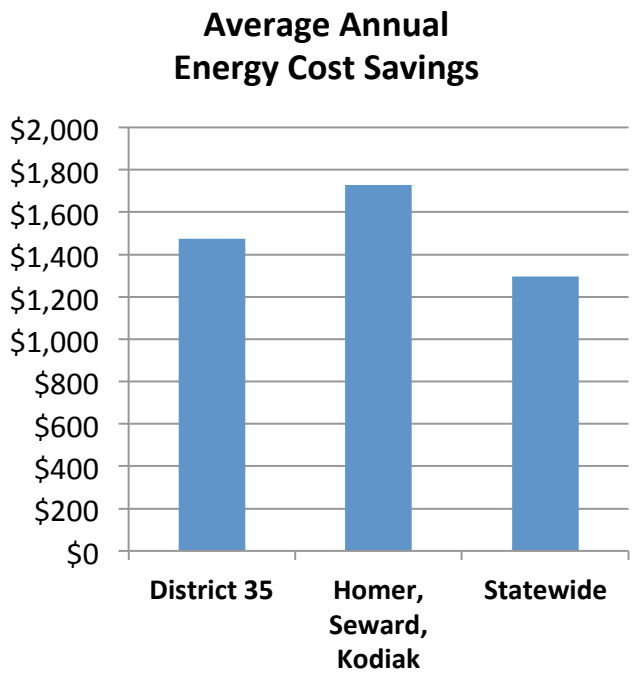
Energy Savings	26%
Cost Savings/home	$1,473

Total estimated BTUs saved in House District 35 are roughly equivalent to 156,209 gallons of #1 heating oil per year.

Of Note for House District 35:

- Annual cost savings from energy efficiency upgrades represent an estimated **$558,199**.
- The state's investment of nearly **$2.4 million will be repaid in just over 4.2 years** through homeowner cost savings, an annual return of 24%.
- AHFC has awarded **62 "5 Star Plus"** new home construction rebates, equating to an additional $465,000 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated
        - **62% energy reduction**
        - Yearly cost savings - **$12,503**
    - **Retrofit Actions:** improved the insulation in the ceiling and crawlspace; tightened the structure; and upgraded the domestic hot water system.





Homes in House District 35 have realized energy savings that were lower than the Regional and Statewide averages. Their energy cost savings were also lower than the Regional average, but higher than Statewide average. Like the Northern Railbelt and District 36, District 35 does not have access to low-cost natural gas for space heating. Homes in District 35 rely on a variety of heat sources, with over 50% on heating oil and nearly a quarter using electric heat. Although energy costs in District 35 are similar to the Northern Railbelt, the climate is milder; hence the cost savings are smaller when compared to the Northern Railbelt Region. Energy savings are primarily attributed to air tightening, increased insulation, domestic hot water, and heating system upgrades.

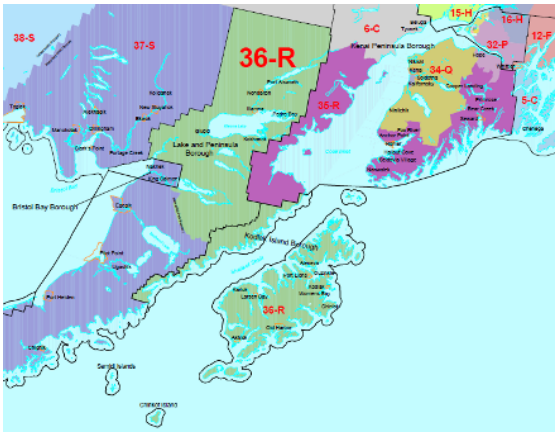
Estimated Yearly Fuel Use Reductions in District 35

Wood Use Reduction	241 cords
Coal Use Reduction	33 tons
Electric Use Reduction	1,108,313 kWh
Gas Use Reduction	0 therms
Oil 1/Oil 2 Use Reduction	81,300 gals
Propane Use Reduction	10,044 gals

House District 35 realized an estimated annual reduction of 81,000 gallons of fuel oil. Electrical use was reduced by 24% in House District 35.

House District 36 – Kodiak

Senate Representative: Gary Stevens (R)
House Representative: Alan Austerman (R)



Description

House District 36 is located in South Central Alaska, on the railbelt, and experiences a maritime climate with moderate winter temperatures. Primary fuel sources are oil and electricity generated from hydropower, diesel, and wind.

Home Energy Rebate Program Participation

# of Applications	347
Expired	146
In Process	28
Completed	172
Completion Rate	54%
Avg. Completion Time (mos.)	14.6
Average Home Age	33.3
Total Rebate Funds	$1.2 million
Average Rebate Amount	$6,394

Home Energy Rebate Program Outcomes
Estimated Yearly Savings

District Wide Totals

Energy Savings	13.7 billion BTU
Cost Savings	$390,784
CO2 Reduction	1.7 million LBS

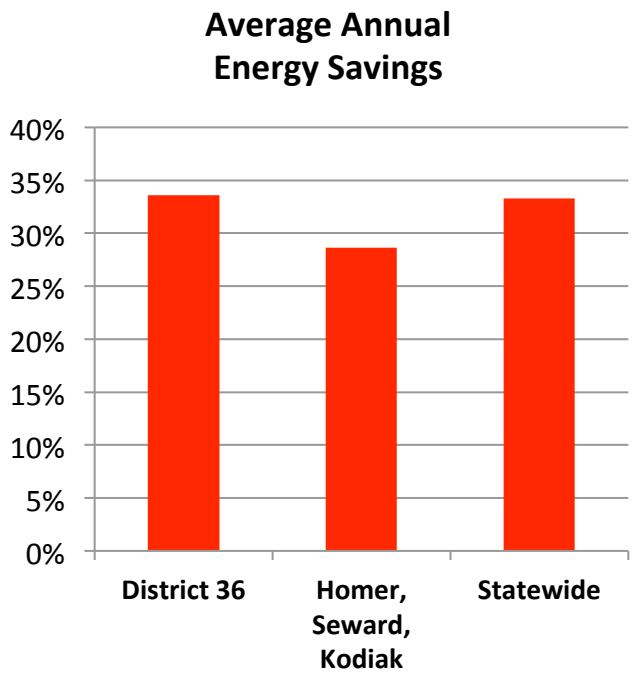
Per Home Averages

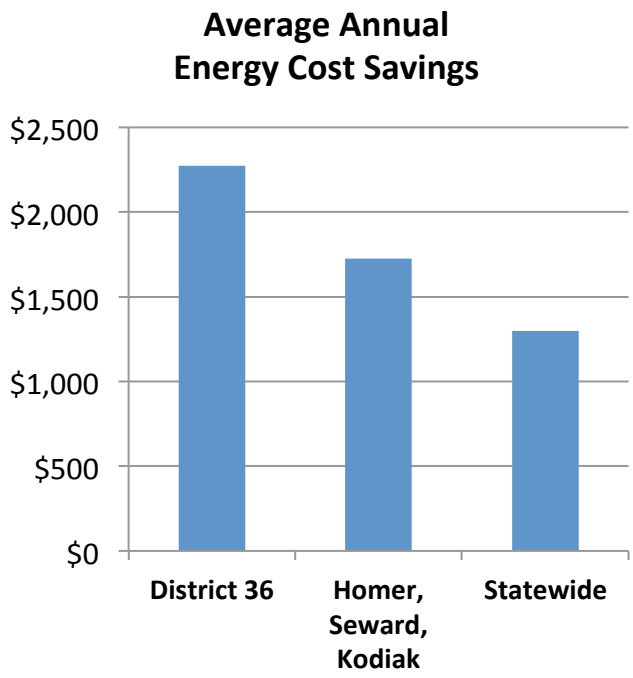
Energy Savings	34%
Cost Savings/home	$2,272

Total estimated BTUs saved in House District 36 are roughly equivalent to 100,486 gallons of #1 heating oil per year.

Of Note for House District 36:

- Annual cost savings from energy efficiency upgrades represent an estimated **$390,784**.
- It is estimated that the state's investment of over **$1.2 million will be repaid in less than 3.2 years** through homeowner cost savings, an annual return of 31%.
- AHFC has awarded **13 "5 Star Plus"** new home construction rebates, equating to an additional $97,500 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
  - Estimated
    - **79% energy reduction**
    - Yearly cost savings - **$13,466**
  - **Retrofit Actions:** improved the insulation and tightened the structure.





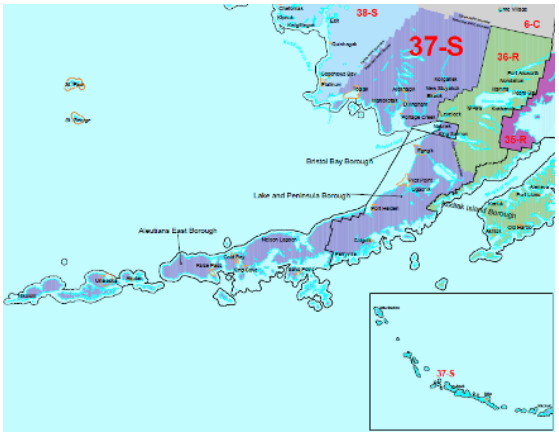
Homes in House District 36 have realized higher energy and cost savings than the Statewide and Regional averages. Like the Northern Railbelt, homes in District 36 rely primarily on higher-cost heating oil for space heating. Although energy costs in District 36 are similar to the Northern Railbelt, the climate is milder. Thus, the cost savings, compared to the Northern Railbelt, are smaller even though energy savings are greater. Energy savings are primarily attributed to heating system upgrades, window upgrades, increased floor and ceiling insulation, and air tightening.

Estimated Yearly Fuel Use Reductions in District 36	
Wood Use Reduction	151 cords
Coal Use Reduction	0 tons
Electric Use Reduction	6,796 kWh
Gas Use Reduction	0 therms
Oil 1/Oil 2 Use Reduction	75,670 gals
Propane Use Reduction	971 gals

House District 36 realized an estimated annual reduction of 76,000 gallons of fuel oil.

House District 37 – Bristol Bay/Aleutians

Senate Representative: Lyman Hoffman (D)
House Representative: Bryce Edgmon (D)



Description

House District 37 is located in rural West Alaska and experiences a maritime and transitional climate with moderate or moderately cool winter temperatures. Primary fuel sources are oil and electricity generated from diesel.

Home Energy Rebate Program Participation

# of Applications	98
Expired	54
In Process	8
Completed	36
Completion Rate	40%
Avg. Completion Time (mos.)	16.7
Average Home Age	28.6
Total Rebate Funds	$0.2 million
Average Rebate Amount	$5,037

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	2.3 billion BTU
Cost Savings	$83,967
CO2 Reduction	0.4 million LBS

Per Home Averages

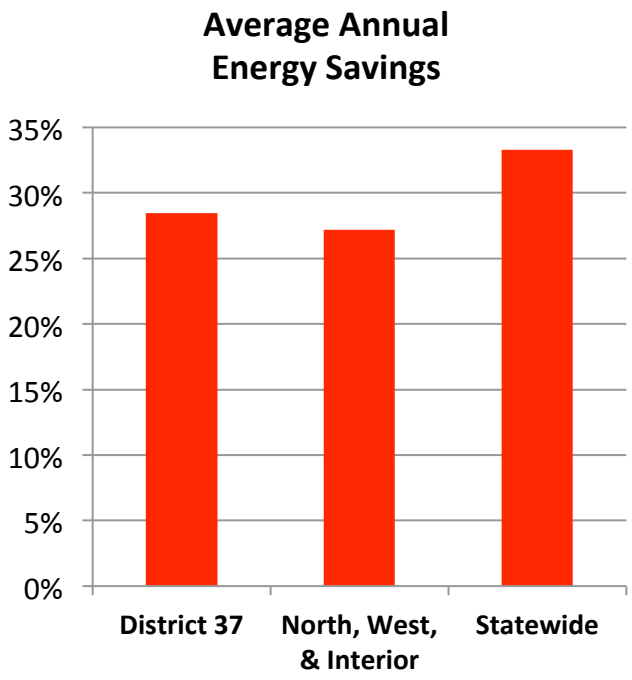
Energy Savings	28%
Cost Savings/home	$2,332

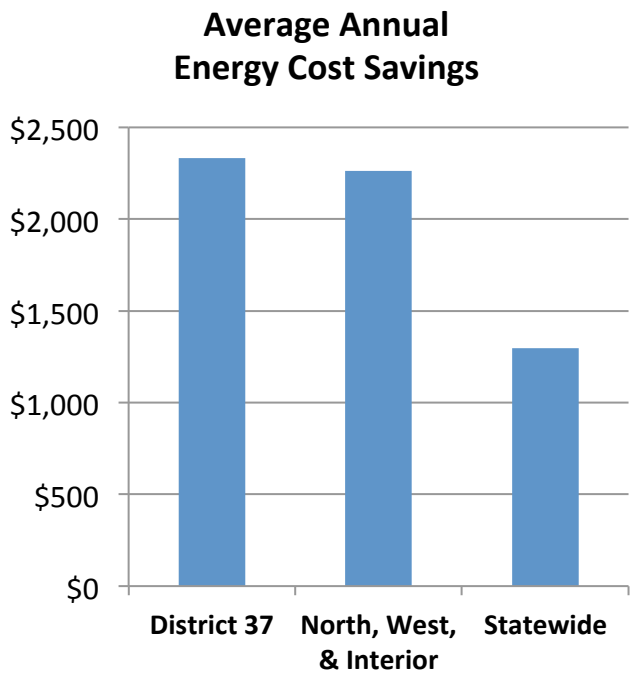
Total estimated BTUs saved in House District 37 are roughly equivalent to 16,979 gallons of #1 heating oil per year.

Of Note for House District 37:

- Annual cost savings from energy efficiency upgrades represent an estimated **$82,967**.
- The state's investment of **$219,496 will be repaid in less than 2.6 years** through homeowner cost savings, an annual return of 38%.

- **Highlighted Single Home Energy Rebate Retrofit:**
  - Estimated
    - **56% energy reduction**
    - Yearly cost savings - **$8,389**
  - **Retrofit Actions:** improved the floor and ceiling insulation and sealed the ducting.





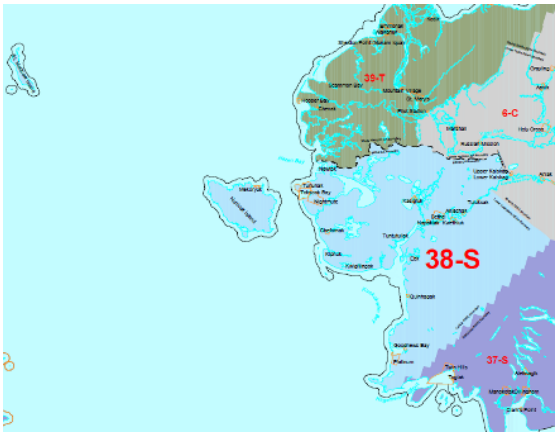
Homes in House District 37 have realized higher energy savings than in the Region, though lower than the Statewide average. They had higher cost savings than both the Regional and Statewide averages. Energy savings are primarily attributed to air tightening, increased insulation, and heating system upgrades. It is noteworthy that upon completion of the energy upgrades, homes in District 37 still have average energy costs more than 2.3 times the state average. To date, only a handful of homes have completed the Home Energy Rebate Program in District 37.

Estimated Yearly Fuel Use Reductions in District 37	
Wood Use Reduction	9 cords
Coal Use Reduction	0 tons
Electric Use Reduction	14,841 kWh
Gas Use Reduction	0 therms
Oil 1/Oil 2 Use Reduction	15,195 gals
Propane Use Reduction	0 gals

House District 37 realized an estimated annual reduction of 15,000 gallons of fuel oil. Electrical use was reduced by 4% in House District 37.

House District 38 – Bethel

Senate Representative: Lyman Hoffman (D)
House Representative: Bob Herron (D)



Description

House District 38 is located in rural West Alaska and experiences a transitional/continental climate with cool summers and cold winter temperatures. Primary fuel sources are oil and electricity generated from diesel.

Home Energy Rebate Program Participation

# of Applications	104
Expired	43
In Process	9
Completed	52
Completion Rate	54%
Avg. Completion Time (mos.)	15.2
Average Home Age	28.7
Total Rebate Funds	$0.3 million
Average Rebate Amount	$5,097

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	2.0 billion BTU
Cost Savings	$101,484
CO2 Reduction	0.4 million LBS

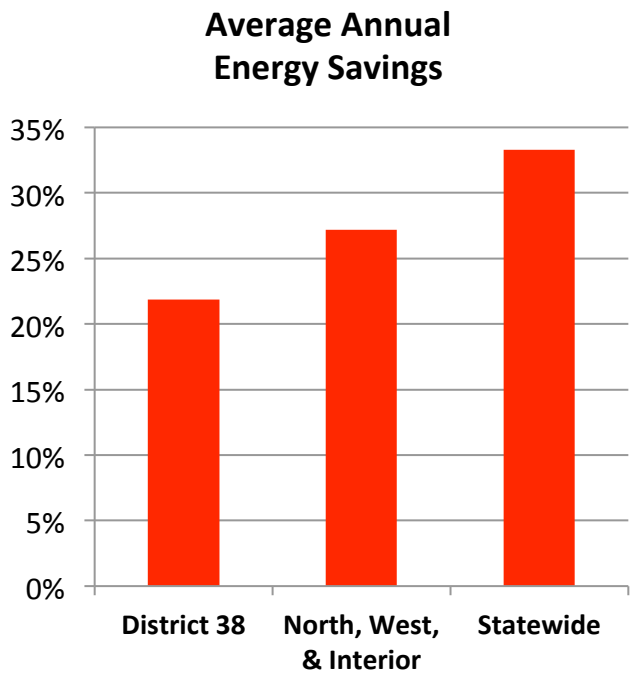
Per Home Averages

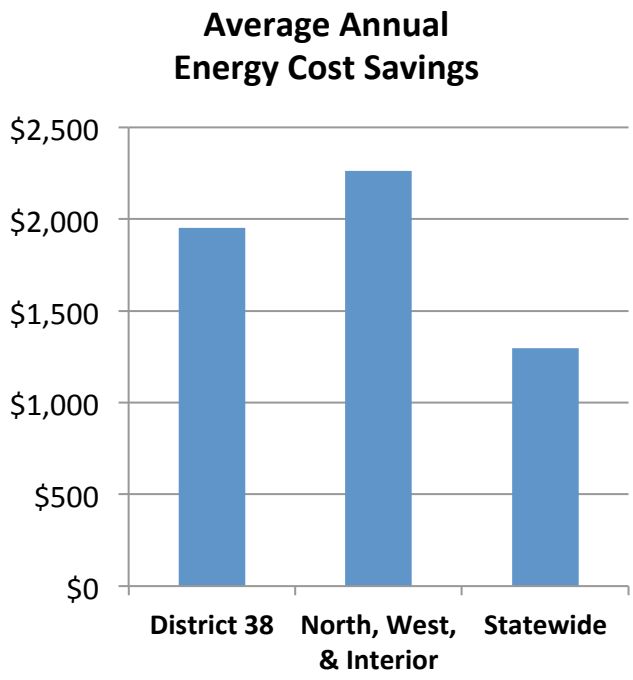
Energy Savings	22%
Cost Savings/home	$1,952

Total estimated BTUs saved in House District 38 are roughly equivalent to 14,435 gallons of #1 heating oil per year.

Of Note for House District 38:

- Annual cost savings from energy efficiency upgrades represent an estimated **$101,484**.
- The state's investment of **$307,306 will be repaid in 3.0 years** through homeowner cost savings, an annual return of 33%.
- **Highlighted Single Home Energy Rebate Retrofit:**
  - Estimated
    - **30% energy reduction**
    - Yearly cost savings - **$4,343**
  - **Retrofit Actions:** improved the insulation in the ceiling; tightened the structure; and upgraded heating and domestic hot water systems.





Homes in House District 38 show the lowest average energy improvement of all districts Statewide, yet still have achieved an average of over 20% energy efficiency improvement. Energy savings are primarily attributed to heating system upgrades, air tightening, window upgrades, and increased ceiling insulation. Although cost savings in District 38 fall below the Regional average, the $1,952 annual average savings are higher than the Statewide average. It is noteworthy that upon completion of the energy upgrades, homes in District 38 still have average energy costs of nearly twice the State average. To date only a handful of homes have completed the Home Energy Rebate Program in District 38.

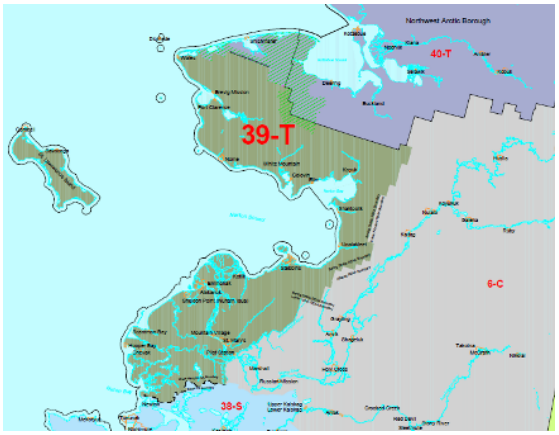
Estimated Yearly Fuel Use Reductions in District 38

Wood Use Reduction	1 cords
Coal Use Reduction	0 tons
Electric Use Reduction	57,645 kWh
Gas Use Reduction	0 therms
Oil 1/Oil 2 Use Reduction	12,760 gals
Propane Use Reduction	0 gals

House District 38 realized an estimated annual reduction of 13,000 gallons of fuel oil. Electrical use was reduced by 12% in House District 38.

House District 39 – Bering Straits

Senate Representative: Donald Olson (D)
House Representative: Neal Foster (D)



Description

House District 39 is located in rural West Alaska and experiences a transitional, continental climate with cool summers and cold winter temperatures. Primary fuel sources are oil and electricity generated from diesel.

Home Energy Rebate Program Participation

# of Applications	47
Expired	28
In Process	6
Completed	13
Completion Rate	32%
Avg. Completion Time (mos.)	15.7
Average Home Age	48.5
Total Rebate Funds	$0.1 million
Average Rebate Amount	$6,285

Home Energy Rebate Program Outcomes
Estimated Yearly Savings

District Wide Totals

Energy Savings	0.7 billion BTU
Cost Savings	$31,572
CO2 Reduction	0.1 million LBS

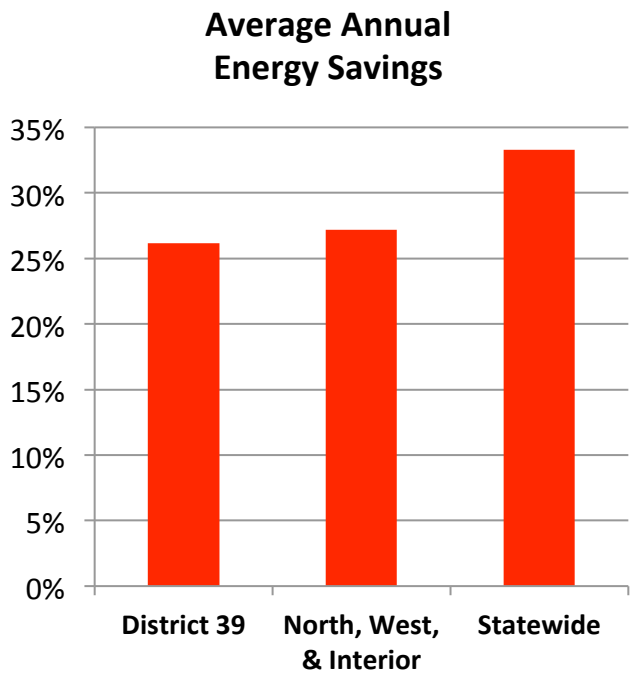
Per Home Averages

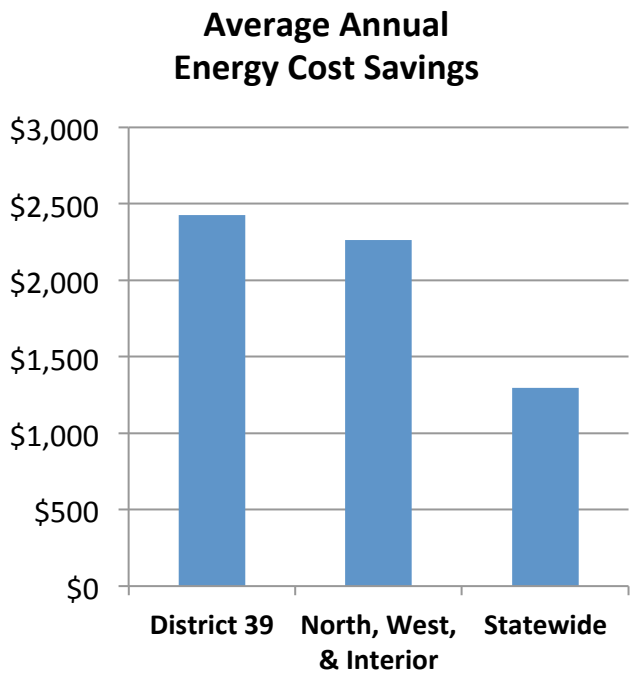
Energy Savings	26%
Cost Savings/home	$2,429

Total estimated BTUs saved in House District 39 are roughly equivalent to 5,120 gallons of #1 heating oil per year.

Of Note for House District 39:

- Annual cost savings from energy efficiency upgrades represent an estimated **$31,572**.
- The state's investment of **$99,256 will be repaid in just over 3.1 years** through homeowner cost savings, an annual return of 32%.
- AHFC has awarded **six "5 Star Plus"** new home construction rebates, equating to an additional $45,000 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
    - Estimated
        - **54% energy reduction**
        - Yearly cost savings - **$7,007**
    - **Retrofit Actions:** insulated and tightened the structure.





Homes in House District 39 have realized energy savings on par with the regional average, and lower than the State average. Cost savings eclipse the Statewide average due primarily to the high cost of energy. Energy savings are primarily attributed to heating system upgrades, air tightening, window upgrades, and increased ceiling insulation. On average, homes in District 39 entered the program with lower energy ratings, but achieved energy ratings comparable to the regional average upon completion of the program. It is noteworthy that upon completion of the energy upgrades, homes in District 39 still have average energy costs of nearly twice the state average. To date, only a handful of homes have completed the Home Energy Rebate Program in District 39.

Estimated Yearly Fuel Use Reductions in District 39	
Wood Use Reduction	0 cords
Coal Use Reduction	0 tons
Electric Use Reduction	9,584 kWh
Gas Use Reduction	0 therms
Oil 1/Oil 2 Use Reduction	4,879 gals
Propane Use Reduction	0 gals

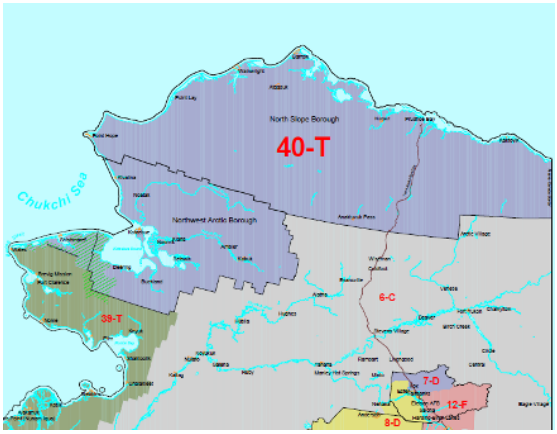
House District 39 realized an estimated annual reduction of 5,000 gallons of fuel oil. Electrical use was reduced by 9% in House District 39.

House District 40 – Arctic

Senate Representative: Donald Olson (D)
House Representative: Reggie Joule (D)

Description

House District 40 is located in rural North Alaska and experiences an arctic climate with cold temperatures. Primary fuel sources are oil and natural gas.



Home Energy Rebate Program Participation

# of Applications	60
Expired	35
In Process	6
Completed	19
Completion Rate	33%
Avg. Completion Time (mos.)	15.4
Average Home Age	31.3
Total Rebate Funds	$0.1 million
Average Rebate Amount	$4,921

Home Energy Rebate Program Outcomes

Estimated Yearly Savings

District Wide Totals

Energy Savings	1.2 billion BTU
Cost Savings	$46,544
CO2 Reduction	0.2 million LBS

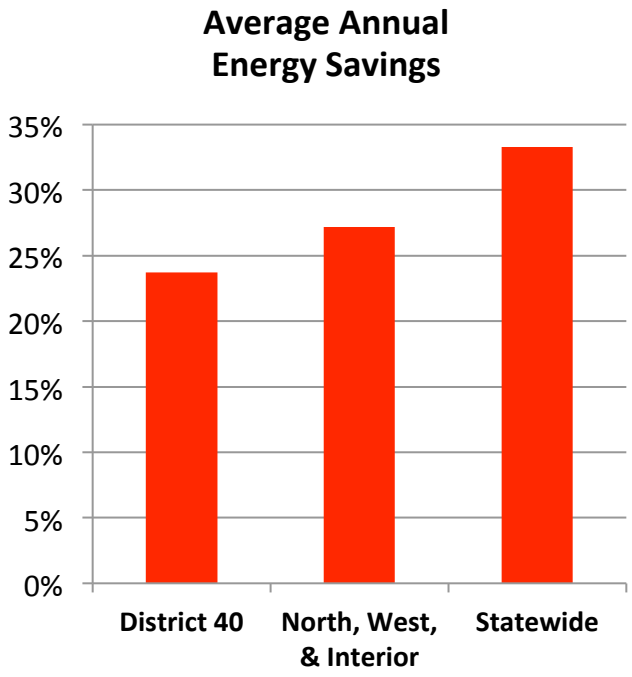
Per Home Averages

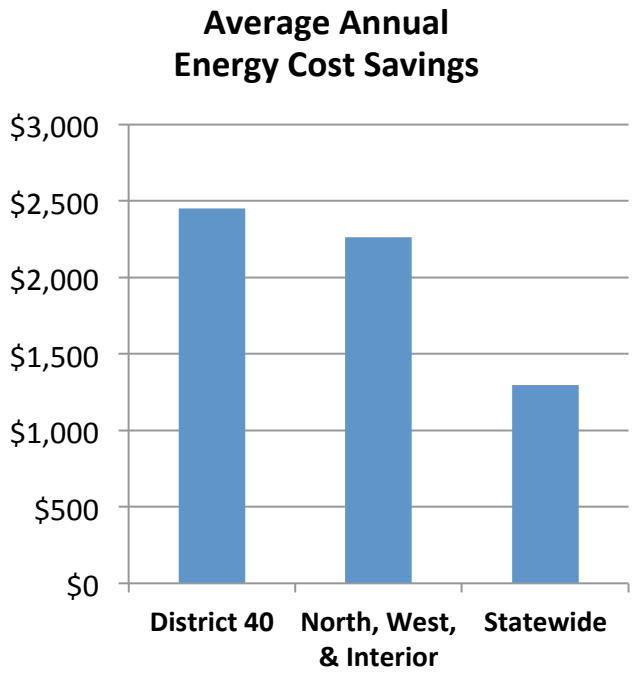
Energy Savings	24%
Cost Savings/home	$2,450

Total estimated BTUs saved in House District 40 are roughly equivalent to 8,472 gallons of #1 heating oil per year.

Of Note for House District 40:

- Annual cost savings from energy efficiency upgrades represent an estimated **$46,544**.
- The state's investment of **$116,320 will be repaid in 2.5 years** through homeowner cost savings, an annual return of 40%.
- AHFC has awarded **one "5 Star Plus"** new home construction rebate, equating to an additional $7,500 state investment since 2008.
- **Highlighted Single Home Energy Rebate Retrofit:**
  - Estimated
    - **60% energy reduction**
    - Yearly cost savings - **$5,904**
  - **Retrofit Actions:** improved the insulation in the walls and ceiling; tightened the structure; and upgraded the heating system to a smaller, more efficient unit.





Homes in House District 40 have averaged the second lowest energy improvement of all districts Statewide, yet still have achieved an average 22% increase in energy efficiency. Energy savings are primarily attributed to heating system upgrades, air tightening, and window upgrades. Despite the availability of natural gas in some communities, the cost savings generated from HERP in District 40 are among the highest in the state. These cost savings are most likely due District 40's cold climate (with the highest number of heating degree days) and to elevated fuel costs in most of the district. It is noteworthy that upon completion of the energy upgrades, homes in District 40 still have average energy costs more than 2.6 times the state average. To date only a handful of homes have completed the Home Energy Rebate Program in District 40.

Estimated Yearly Fuel Use Reductions in District 40	
Wood Use Reduction	0 cords
Coal Use Reduction	0 tons
Electric Use Reduction	36,421 kWh
Gas Use Reduction	2,427 therms
Oil 1/Oil 2 Use Reduction	5,627 gals
Propane Use Reduction	0 gals

House District 40 realized an estimated annual reduction of 6,000 gallons of fuel oil. Electrical use was reduced by 18% in House District 40.