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Bristol Bay Native Corporation Dashboard¹

Population: The Alaska Department of Labor and Workforce Development's current (2012) population estimate for the Bristol Bay Native Corporation ANCSA region is 7,473, a decrease of 6% from 2000.

Housing Units: There are currently 4,784 housing units in the Bristol Bay Native Corporation ANCSA region. Of these, 2,278 are occupied, 325 vacant units are for sale or rent, and the remaining 2,181 are seasonal or otherwise vacant units (Profile Figure R6).

Energy: The average home in the Bristol Bay Native Corporation ANCSA region is 1,232 square feet and uses 136,000 BTUs of energy per square foot annually. This is similar to the statewide average of 137,000 BTUs per square foot per year.

Energy Costs: Using AKWarm estimates, average annual energy cost for homes in the Bristol Bay Native Corporation ANCSA region is \$7,054, which is approximately 2.5 times more than the cost in Anchorage, and 3.3 times more than the national average (Profile Figure R13).

Energy Programs: Approximately 27% of the occupied housing in the Bristol Bay Native Corporation ANCSA region have completed the Home Energy Rebate or Weatherization program, or have received BEES certification since 2008, compared to 21% statewide (Profile Figure R12).

Housing Quality: Within current housing stock, newer homes have better energy performance. On average, homes built in the 1940s are currently rated at 1-star-plus compared to a current average rating of 3-star-plus for homes built after 2000.

Air-tightness: Within current housing stock, newer homes are tighter. On average, homes built in the last decade nearly meet the 2012 BEES standard of 4 air-changes per hour at 50 Pascals (ACH50). In contrast, homes built in the 1940s are 3.4 times leakier than those built since 2000 (Profile Figure R7).

Ventilation: An estimated 1,007 occupied housing units (or 44%) in the Bristol Bay Native Corporation ANCSA region are relatively air-tight and lack a continuous ventilation system. These houses are at higher risk of moisture- and indoor air quality-related issues (Profile Figures R9-R10).

Overcrowding: Fifteen percent of occupied units are estimated to be either overcrowded (9.5%) or severely overcrowded (5.4%). This is roughly 5 times the national average, and makes the Bristol Bay Native Corporation region the fifth most overcrowded ANCSA region in the state.

Affordability: According to American Community Survey (ACS) data, approximately 21% of households in the Bristol Bay Native Corporation region spend 30% or more of total income on reported housing costs, including rent, water and sewer utilities, and energy costs. Using AKWarm estimates, the average annual energy costs constitute approximately 12% of census median area income for occupied housing.

¹ Figures referenced in the Dashboard are located in the ANCSA Region profile.

Bristol Bay Native Corporation Summary

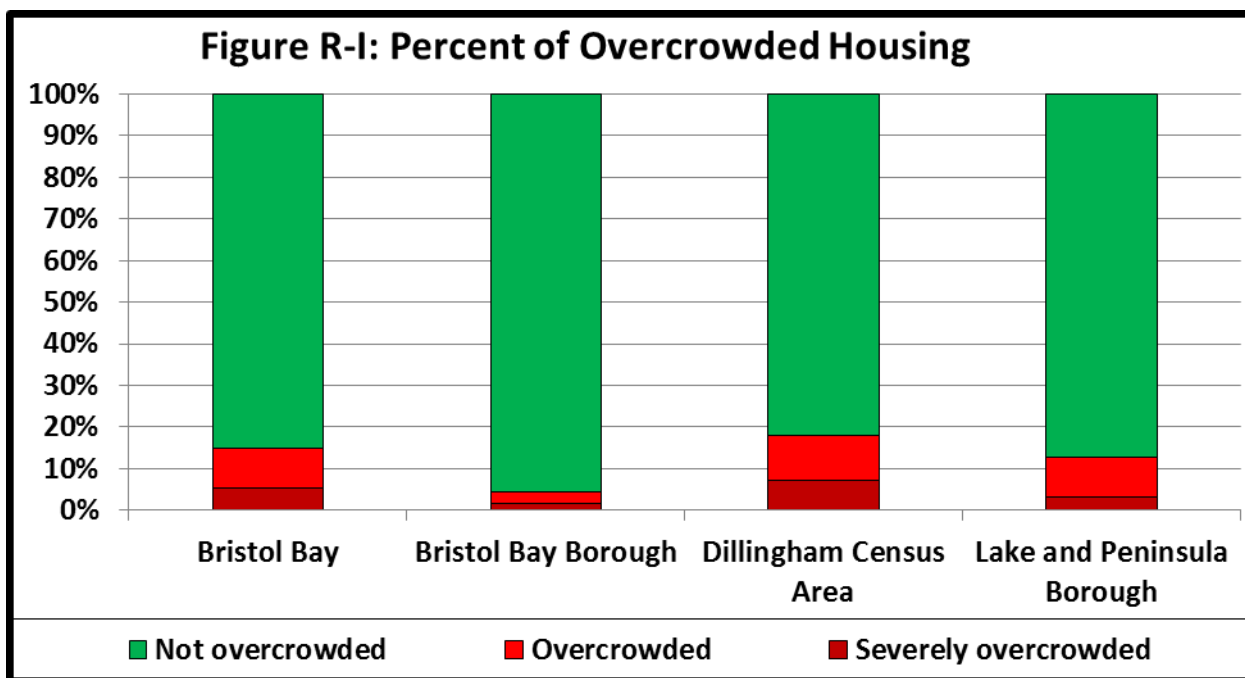
Community

The Bristol Bay ANCSA region is located in the Southwest corner of mainland Alaska and leads into the Bristol Bay, with many communities located on the coast. Average homes in the region range in size from 786 square feet in Manokotak to 1,688 square feet in King Salmon.

Overcrowding

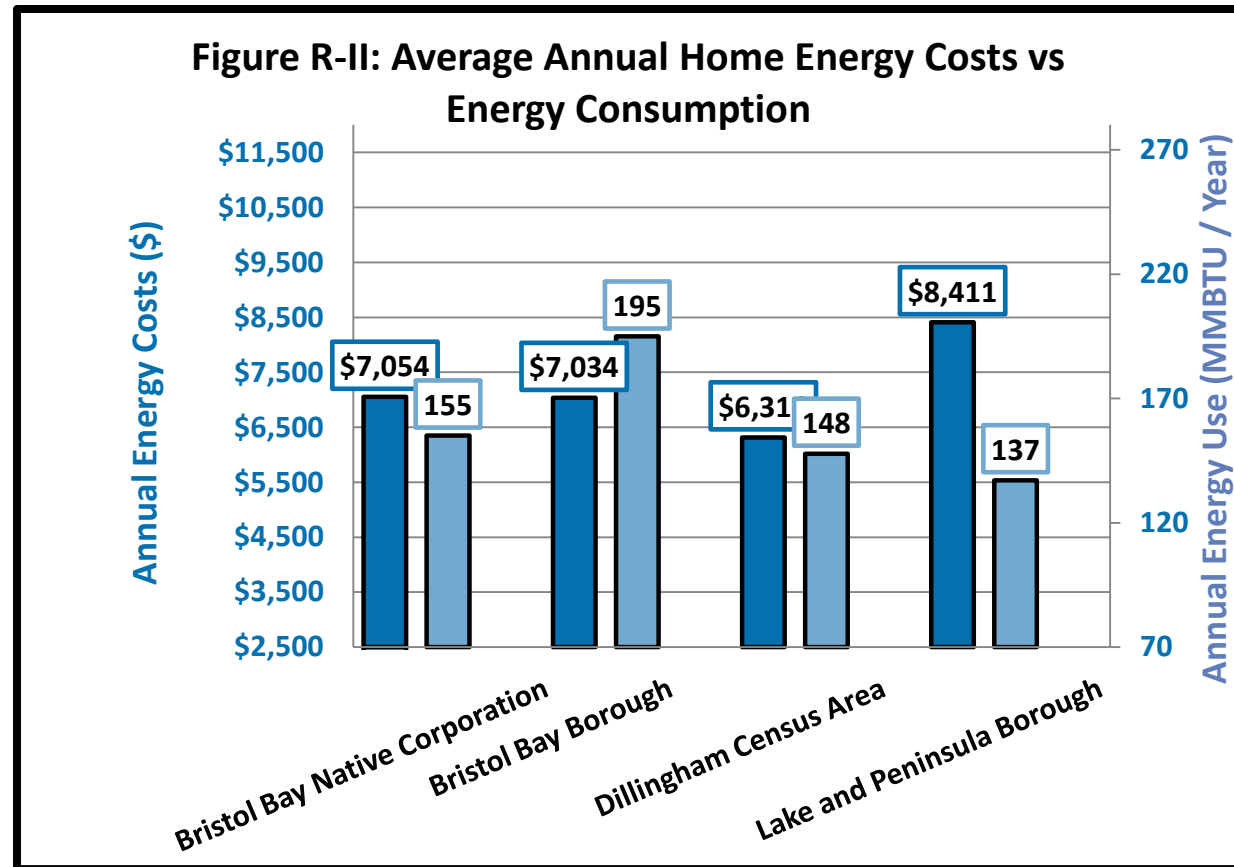
The Bristol Bay region is the fifth most overcrowded area in the state, with 15% of occupied housing units with more than one person per room. The amount of overcrowding differs by community, from a low of approximately 0% overcrowding in Egegik to a high of 58% overcrowding in New Stuyahok. Considering only the six most populous communities in the region, between 4% and 58% of households have more than one person per room. The region’s census areas also have varying levels of overcrowding (Figure R-1). The highest level of overcrowding by census area is found in the Dillingham Census Area (18%) and the least amount of overcrowding is found in the Bristol Bay Borough (4%).

Approximately 7% of housing in the region is vacant and available for sale or rent. Availability also differs at the community level, from a low of an estimated 0% available housing in Newhalen to a high of 22% in Perryville available for sale or rent.



Energy²

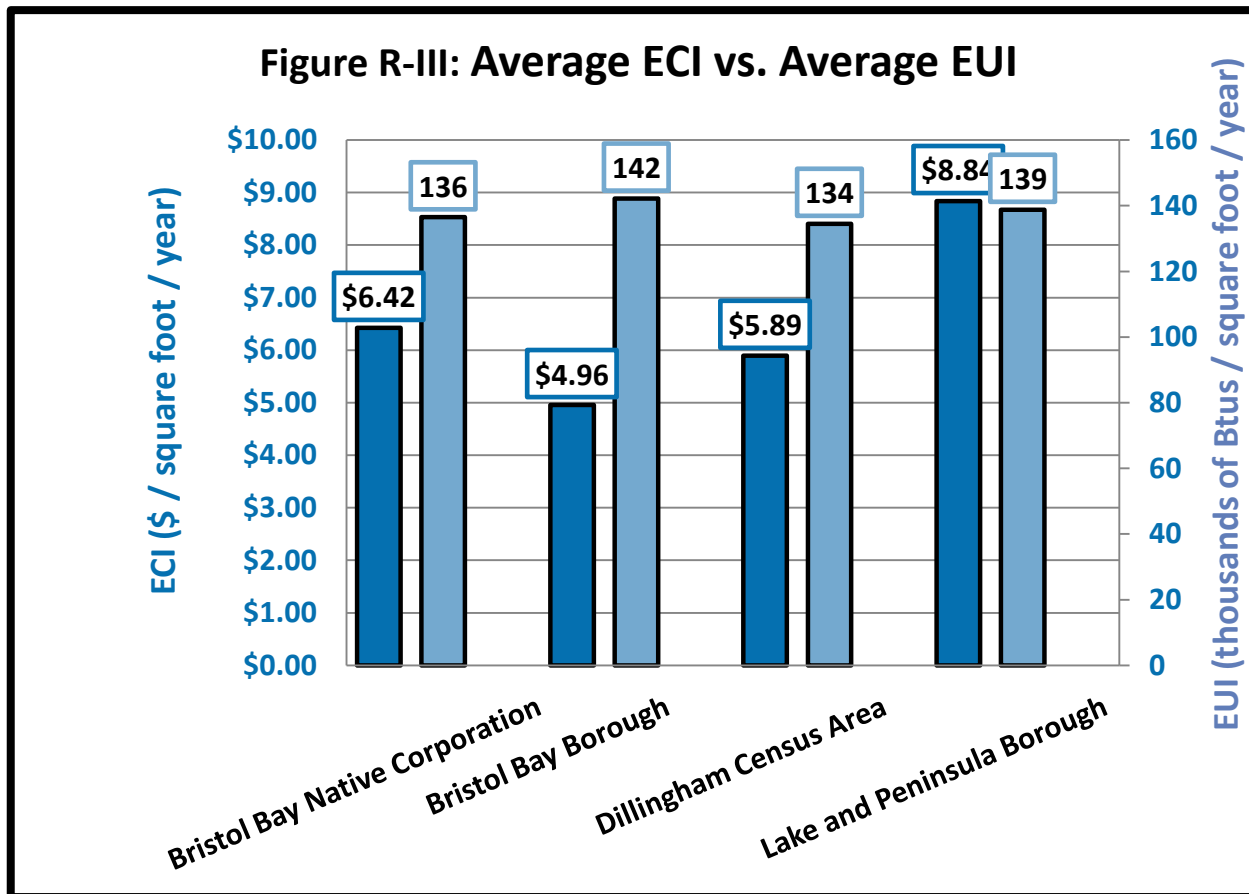
Regionally, the average annual energy cost is \$7,054. The highest annual energy cost when averaged by borough is found in the Lake and Peninsula census area. Residents there pay an estimated \$8,411 per year, despite having the lowest average annual energy usage in the region at 137 million BTUs (Figure R-II). For communities in the region³, the average annual energy costs range from a low of \$4,445 in Aleknagik to a high of \$9,704 in Iliamna. One factor contributing to the high energy costs is the high price for fuel oil found in many of Lake and Peninsula's more remote communities. Many rural residents pay upwards of \$7 or \$8 per gallon of fuel oil, considerably more than the cost found in larger Bristol Bay communities like Dillingham. The Bristol Bay Borough has the highest annual energy use of any census area in the region with home use averaging 195 million BTUs.



² Regional data appearing in this section is based on communities with sufficient levels of ARIS data, so not all communities were included in this analysis.

³ Only communities with sufficient data for reporting are included in Figure R-II.

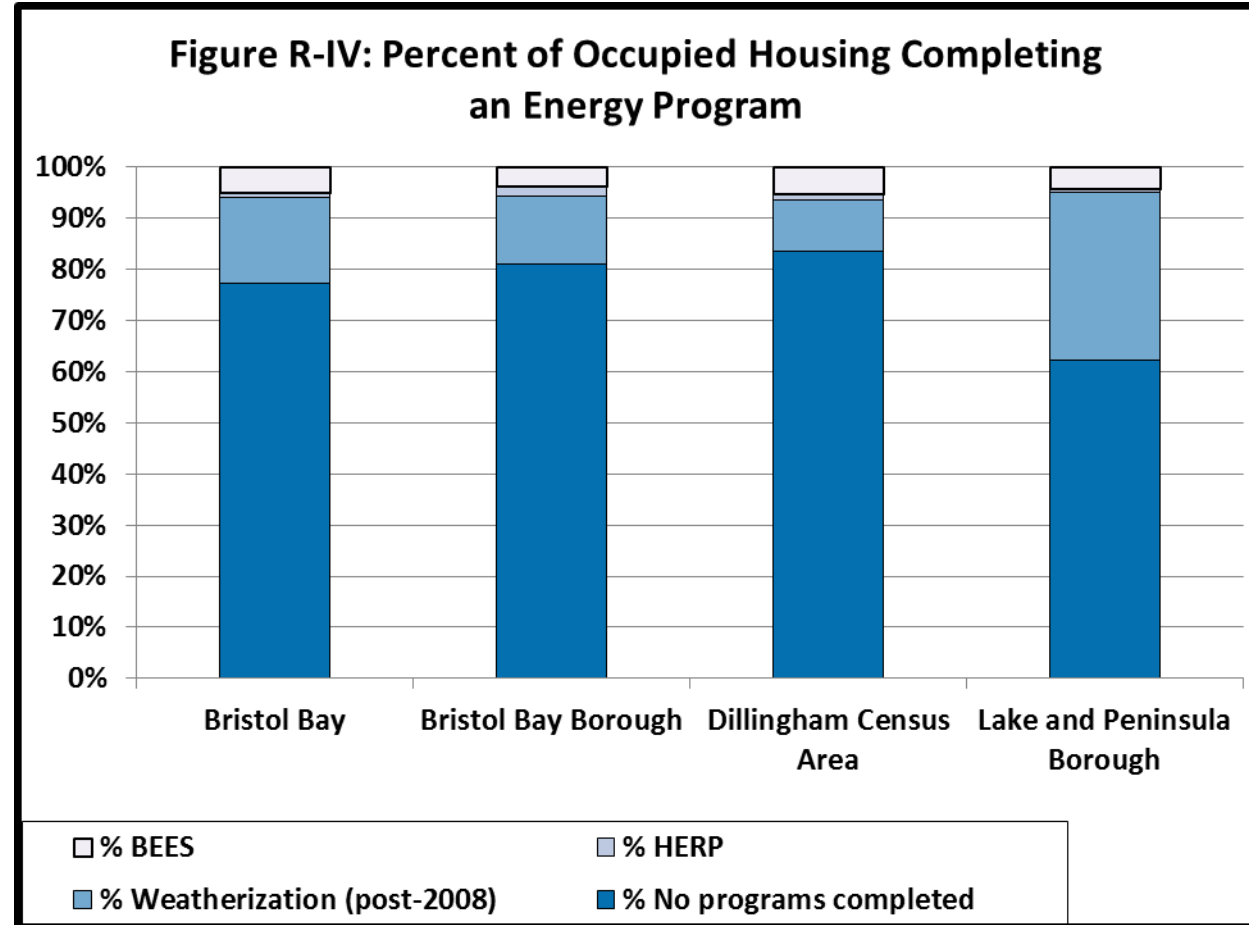
The Bristol Bay region has an average energy use per square foot⁴ of approximately 137 kBtUs, which is very close to the statewide average. The energy use and cost per square foot for each census area in the region is shown in Figure R-III. The Bristol Bay region has the fourth highest energy cost per square foot⁵ of any of the ANCSA regions at \$6.42/ft². This is more than one dollar per square foot more than in the neighboring Aleut region and over \$4 per square foot more than in the CIRI region to the east. Homes in the region have varying home heating degree indices, ranging from 4 BTUs/ft²/HDD in Igiugig to 9.5 in Stuyahok.



⁴ Energy use per square foot is also known as Energy Use Intensity, or EUI and is given in kBtUs per square foot, per year.

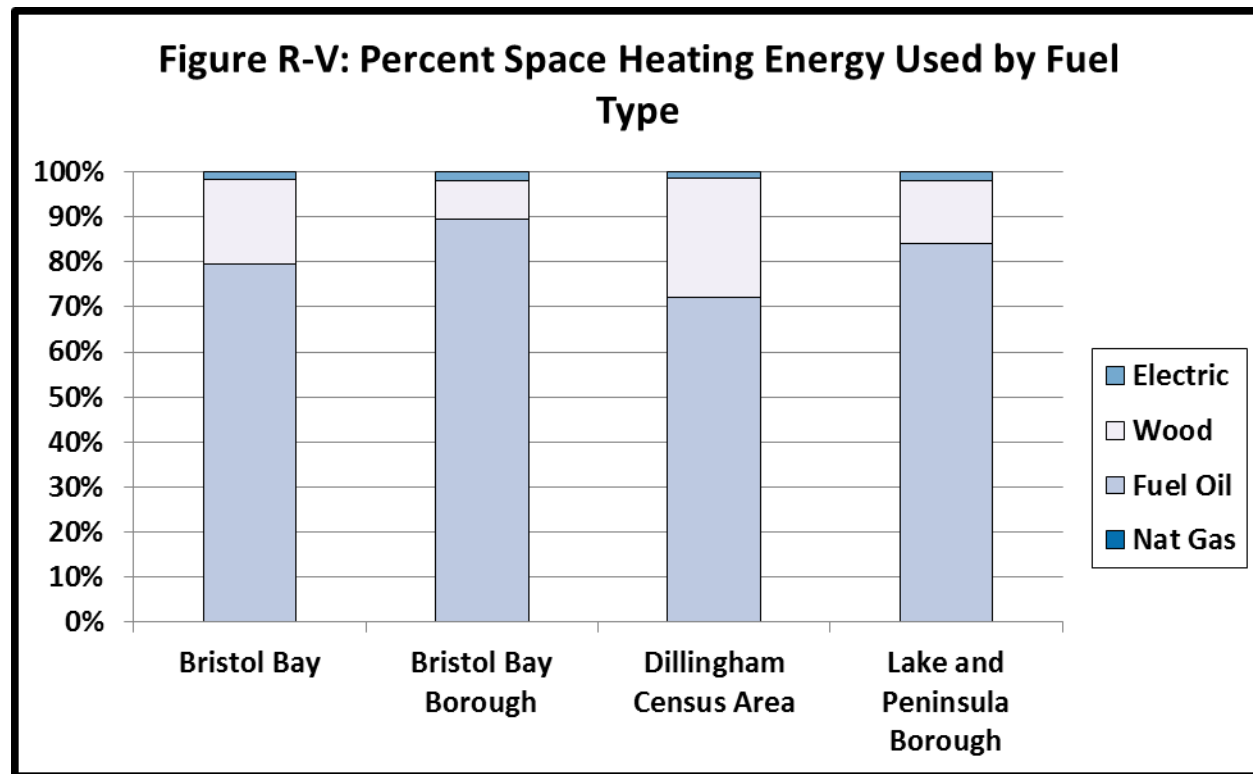
⁵ Energy cost per square foot is also known as the Energy Cost Index, or ECI and is given in dollars per square foot, per year.

Understanding the variations between communities participating in energy efficiency programs is essential to targeting work and resource allocation in the region. Approximately 22% of homes in the region have completed either the Weatherization program or the Home Energy Rebate Program, and an additional 5% have been certified to meet BEES. The Bristol Bay region has the largest percentage of homes that have participated in one of the AHFC energy programs in the state. The percentage of houses completing one of the programs varies widely by community. The lowest participation has occurred in Ekwok, where it is estimated that no homes have completed one of the programs. The greatest participation, an estimated 100%, has occurred in the community of Kokhanok. Figure R-IV shows

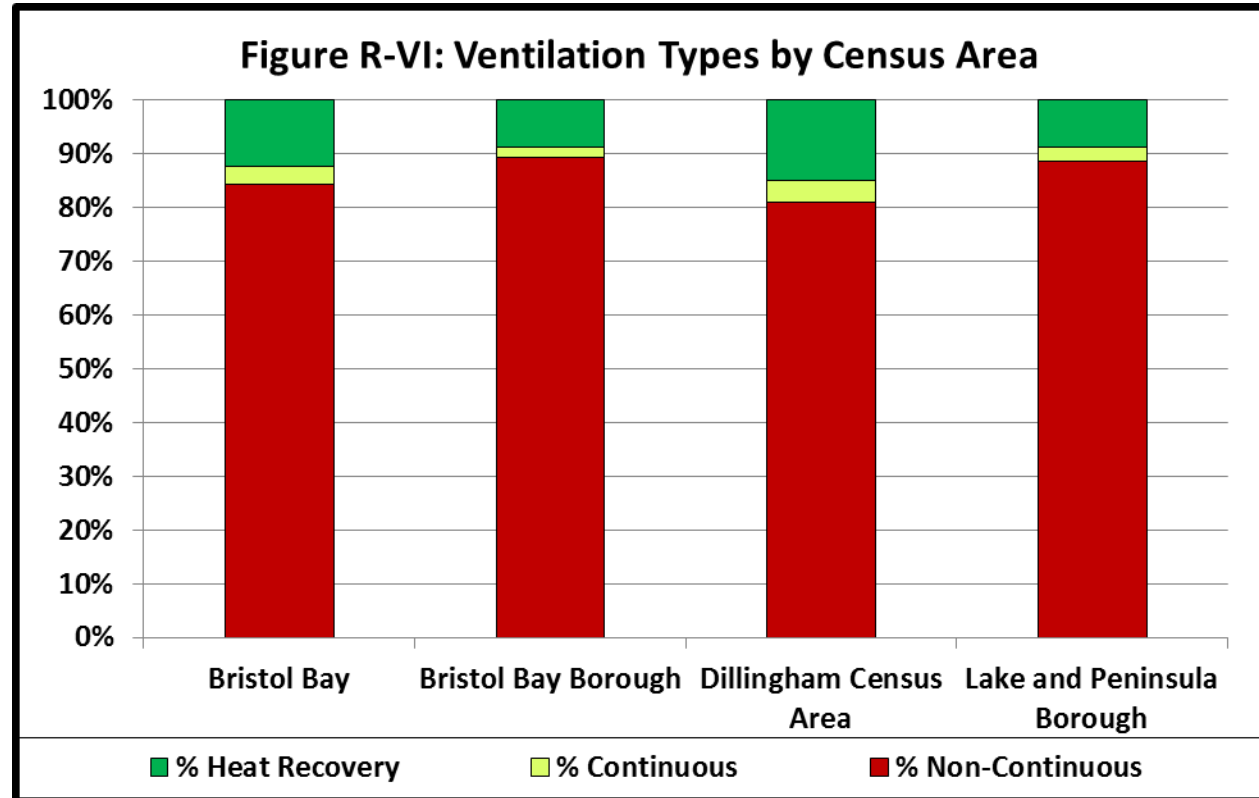


energy program participation in the region and in the three census areas that it is comprised of. The highest participation in the BEES program is in the Dillingham census area where 5% of homes have been certified. Participation in the Home Energy Rebate Program is lower, with the highest rate occurring in the Bristol Bay Borough where 3% of homes have completed the program. The Weatherization program has had the greatest participation with approximately 34% of housing units in the Lake and Peninsula Borough completing a Weatherization retrofit.

Figure R-V gives the space heating fuel types used in the Bristol Bay region. The majority of space heating energy comes from fuel oil. The Bristol Bay Borough uses the highest percentage of fuel oil (89%) for space heating. The Dillingham census area uses the smallest percentage of fuel oil for space heating, but the highest percentage of wood, which provides approximately 27% of the total space heating energy.

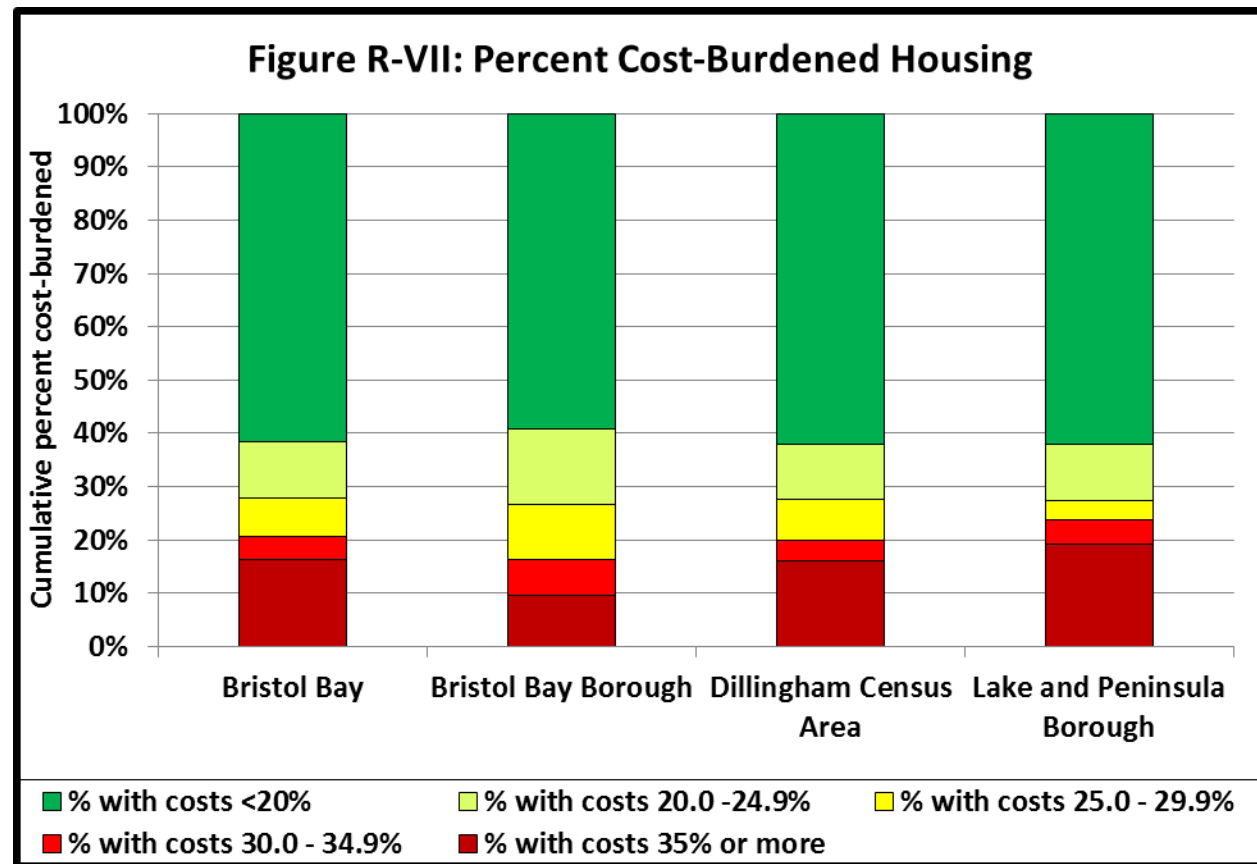


Approximately 15% of homes in the Bristol Bay region have a continuous mechanical ventilation system or a heat recovery ventilation system (Figure R-VI). The Dillingham census area has the highest percentage of housing units with continuous or heat recovery ventilation (19%) in the region. The lowest utilization of continuous or heat recovery ventilation has occurred in the Bristol Bay Borough, where 10% of homes have such a system installed.



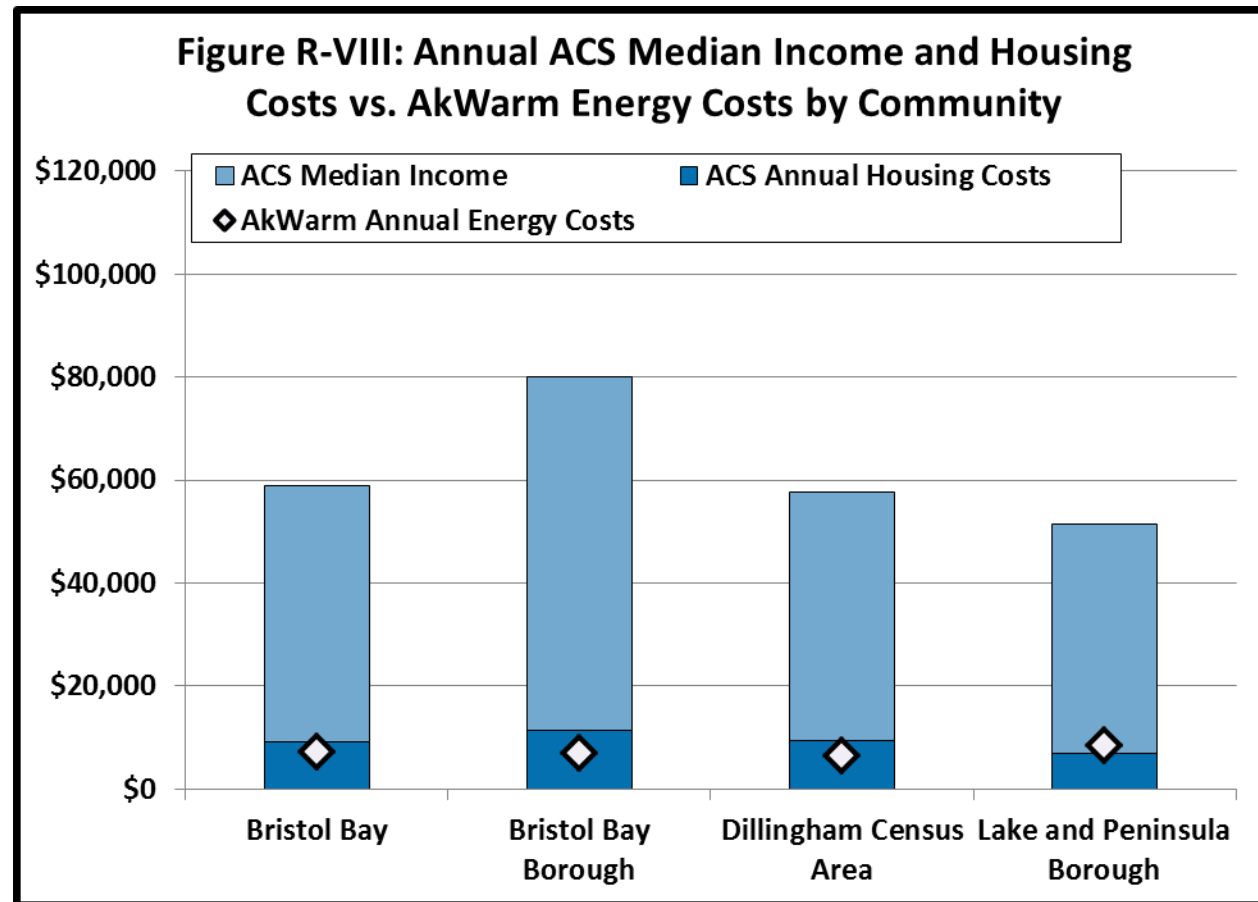
Affordability

Approximately 21% of households in the Bristol Bay region are cost-burdened, spending 30% or more of household income on housing costs.⁶ Affordability ranges widely at the community level, from a low of approximately 0 cost-burdened households in the community of Chignik, to a high of 49% of households in Perryville. Figure R-VII shows the percent of cost-burdened households in the different census areas in the region, which ranges from 16% in the Bristol Bay Borough census area to 24% in the Lake and Peninsula Borough census area. Affordability in the six most populous communities spans a smaller range, with communities having between 5% and 24% cost-burdened households.



⁶ CCHRC's analysis of ACS energy costs indicate that there are systematic underestimations for rural Alaska, which suggests that ACS-based cost burdened housing estimates are low. See Appendix A, "Analysis of American Community Survey Energy Cost Estimates" for more details.

Figure R-VIII shows the median household incomes of the region and its census areas and is plotted along with housing and energy costs.⁶ Median household incomes in Bristol Bay region communities span a wide range from \$14,643 in Igiugig to \$118,125 in Chignik Lagoon. The six most populous communities have median incomes within a tighter range, with household incomes between \$33,472 and \$90,313.



Community, Regional, and Statewide Housing Characteristics

This ANCSA region summary only includes the highlights of housing characteristics at the ANCSA regional level. A detailed data profile with charts and tables for this region follows. The 2014 Alaska Housing Assessment provides a significant amount of data and analysis at statewide, ANCSA region, census area, and community levels. This assessment provides a statewide analysis of housing characteristics, how they compare to national numbers, and the estimated housing needs. Within the 2014 Alaska Housing Assessment, written summaries are available for each individual ANCSA region and census area, and data profiles are available for each community and census area characterizing the housing stock from the perspective of community, overcrowding, energy and affordability. These different tiers of information and analysis allow researchers, housing authorities, policymakers and others to generate answers to specific questions. For a detailed discussion of estimating housing need and comparison of methods to previous Housing Assessments, see Appendix B, "Statewide Need Assessment" of the 2014 Alaska Housing Assessment.

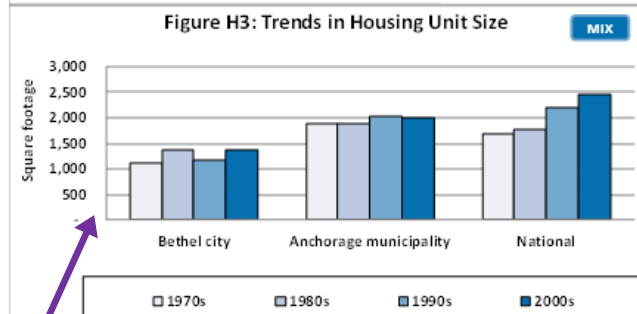
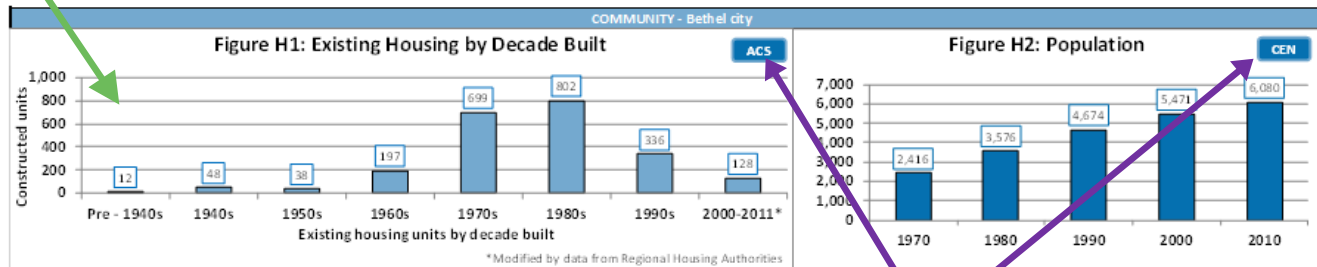
How to Interpret the Profile: Data Sources, Definitions & Clarifications

1

This graph show the breakdown of *current* housing stock by the decade in which the housing units were built. It does *not* show trends over time.

The Alaska Building Energy Efficiency Standard (BEES) was established by AHFC for the State of Alaska to promote the construction of energy efficient buildings. The standards for specific building components are divided into four climate zones, from Zone 6 in Southeast AK to Zone 9 on the North Slope.

| | | | |
|-----------------------------|---------------------------------|---|---------------------|
| Community Profile for: | Bethel city | ANCSA Region | Calista |
| Regional Housing Authority: | AVCP Regional Housing Authority | BEES Climate Zone (Heating Degree Days) | Zone 8 (13,334 HDD) |



Data Source Key:

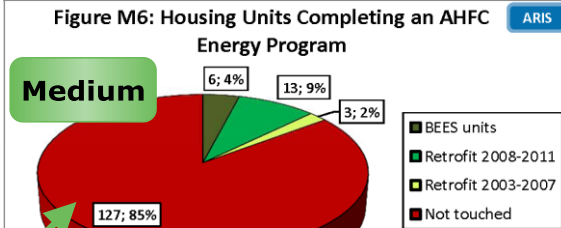
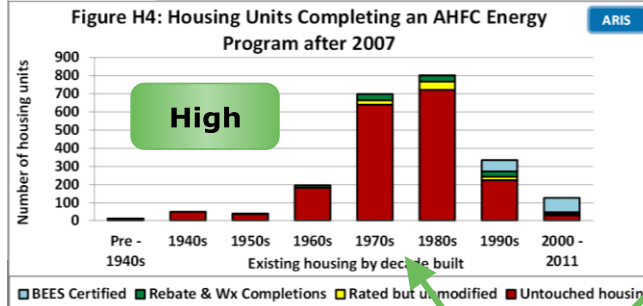
- 2011 American Community Survey 5 year estimates (ACS) **ACS**
- Alaska Retrofit Information System energy audits **ARIS**
- 2010 Decennial Census **CEN**
- Mixed data source; see individual graphs for details. **MIX**

Data Sources: National trends come from the 2009 Residential Energy Consumption Statistics published by the U.S. Energy Information Administration. Anchorage and census area data come from the Alaska Retrofit Information System.

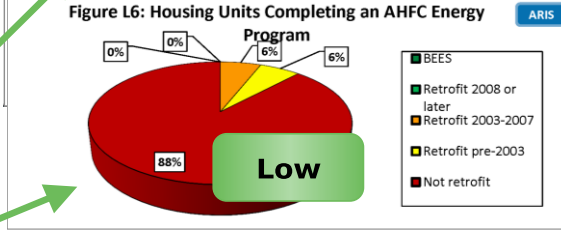
How to Interpret the Profile: Data Sources, Definitions & Clarifications

1

Energy program activity within communities with high, medium and low amounts of ARIS data available. (See p.7 of "How to Interpret" for detail on data levels).



Communities - AHFC Energy Program Activity
High Data - Reported by decade built for the housing units.
Medium Data - Reported by percent of total housing units touched.
Low Data - Have few or no post-2008 Weatherization/Rebate completions or BEES certifications in the ARIS database.



- PCE = Power Cost Equalization
- Average Annual Energy Cost with PCE: The cost to the household after it has been lowered by the PCE subsidy.
- Without PCE: The actual energy cost, including the amount paid by the State for PCE.

American Community Survey (ACS) Data:
Complete Plumbing: Includes hot & cold running water, a flush toilet, and a bathtub or shower within the home.
Complete Kitchen: Includes a sink with a faucet, a stove/range, and a refrigerator.

| Houses Lacking Complete Plumbing or Kitchen Facilities | # Households | % Households |
|--|--------------|--------------|
| Lack complete plumbing | 3 | 10% |
| Lack complete kitchen | 0 | 0% |

| Estimated Total Community Space Heating Fuel Use by Type | | |
|--|--------|-----------|
| Fuel Oil | 20,816 | (gallons) |
| Nat Gas | - | (ccf) |
| Electricity | 15,459 | (kWh) |
| Wood | 3 | (cords) |
| Propane | - | (gallons) |
| Coal | - | (tons) |

| | |
|------------------------------------|---------|
| Avg Annual Energy Cost with PCE | \$5,265 |
| Avg Annual Energy Cost without PCE | \$6,643 |

| Estimated Energy Prices as of January 2013 | |
|--|--------|
| #1 Fuel oil cost (\$ / gallon) | \$5.16 |
| Electricity with PCE (\$/kWh) | \$0.03 |
| Electricity cost without PCE (\$/kWh) | \$0.27 |

| Weatherization Program Retrofits (funding increased in 2008) | |
|--|-------|
| Date Range | Units |
| 2008-2011 | 17 |
| 2003-2007 | - |
| 1990-2002 | 10 |

| Housing Stock Estimates | |
|---------------------------------|----|
| All Housing | Nu |
| All Occupied Housing | |
| All Housing | |
| Vacant housing for Sale or Rent | |

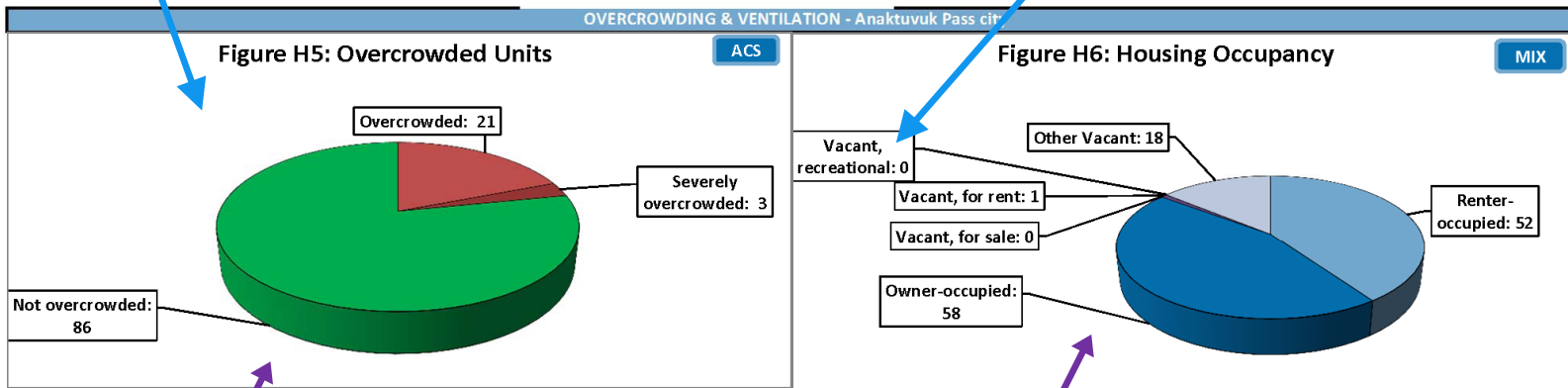
Units weatherized before 2008 are eligible to participate in the program again. (Data source: Alaska Housing Finance Corporation).

How to Interpret the Profile: Data Sources, Definitions & Clarifications

2

Overcrowded: Housing units with more than 1 person per room
Severely Overcrowded: Housing units with more than 1.5 people per room.
 "Rooms" include bedrooms, living rooms, dining rooms, kitchens, and other finished, separated spaces, but not including bathrooms, porches, balconies, foyers, halls, or unfinished basements.

Recreational: For seasonal, recreational, or occasional use.



Data Source:
2011 American Community Survey 5-year estimates

Data Sources: The number of owner-occupied, renter-occupied, and total vacant units are taken from the 2011 ACS 5-year estimates. Data for vacancy type, only available from the decennial Census, were derived by taking the decennial census ratios by vacancy type and applying them to the total number of vacant units.

How to Interpret the Profile: Data Sources, Definitions & Clarifications

2

Heat Recovery: Continuous mechanical ventilation with heat recovery operated with automatic controls.

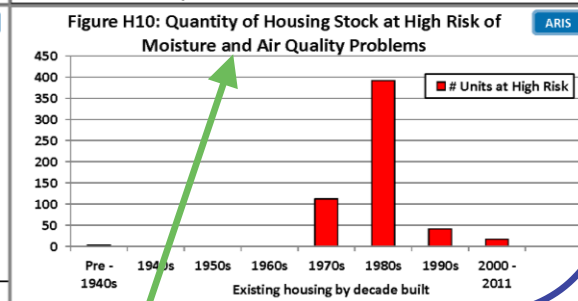
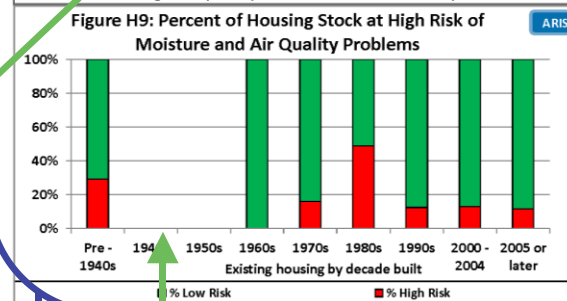
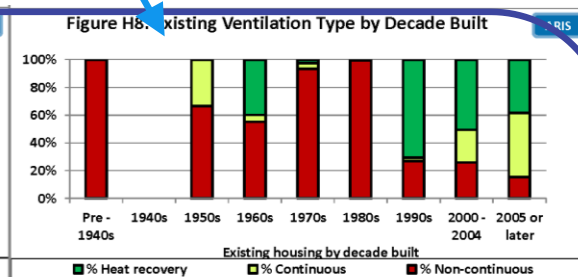
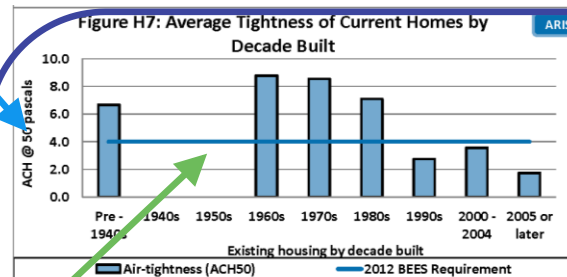
Continuous: Mechanical ventilation without heat recovery operated with automatic controls.

Non-Continuous ventilation: Includes homes with range and/or bath fans not operated using automatic controls.

ACH50: The results of a blower door test to measure building air leakage. Smaller numbers indicate tighter buildings. Tighter buildings lose less heated air to the outside and thus use less energy for space heating.

The 2012 Building Energy Efficiency Standard (BEES) for air-tightness is for reference only, as it was implemented after the majority of homes in Alaska were built.

Data Source:
Alaska Retrofit Information System



Decades with no bar lack sufficient data for reporting. They should not be considered zero quantities.

High Risk of Moisture and Air Quality Problems: Note that moisture or poor indoor air quality have not been physically measured; these houses are considered "at-risk" because they are relatively air tight (less than 0.5 estimated natural air changes per hour) and do not have a continuous ventilation system.

How to Interpret the Profile: Data Sources, Definitions & Clarifications

3

Rating stars and points are based on AHFC's AkWarm energy rating system.

Average annual energy cost:
Includes all end uses. Costs are estimated using January 2013 energy prices, and include reductions from the PCE program.

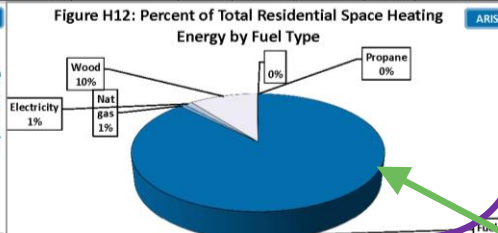
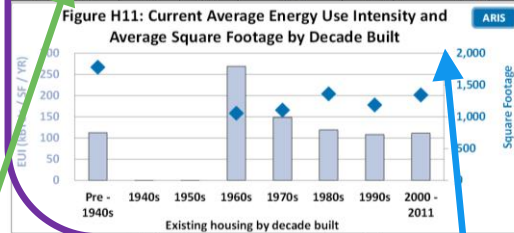
Space Heating, DHW, Appliances:
Estimated annual energy for the end uses of: Space Heating, Domestic Hot Water, and all other energy including lights, appliances, and electronics.

ECI: Energy Cost Index, the amount of money spent on energy per year divided by square footage.

The number of AkWarm records from each decade built that were used to calculate the averages reported.

| Current Residential Units by Year Built | Number of Records | Avg Energy Rating | Avg Energy Rating Points | Avg Sq. Feet | Avg Annual Energy Cost (with PCE) | Avg Annual Energy Use (million BTUs) | Avg Ann Energy by Use (million Btus) | | | Avg. EUI (kBtu/SqFt) | Avg. ECI (\$ / SqFt) | Avg. Home Heating Index |
|---|-------------------|-------------------|--------------------------|--------------|-----------------------------------|--------------------------------------|--------------------------------------|-----|------------|----------------------|----------------------|-------------------------|
| | | | | | | | Space Heating | DHW | Appliances | | | |
| OVERALL | 419 | 3-star | 70.7 | 1,237 | \$ 8,065 | 160 | 102 | 27 | 26 | 132 | \$ 6.97 | 6.5 |
| Pre- 1940 | 7 | 3-star | 68.3 | 1,779 | \$ 11,107 | 199 | 145 | 21 | 33 | 113 | \$ 6.66 | 6.4 |
| 1940-49 | 0 | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR |
| 1950-59 | 3 | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR |
| 1960-69 | 15 | 2-star | 52.3 | 1,056 | \$ 11,087 | 287 | 225 | 35 | 27 | 269 | \$ 10.60 | 16.0 |
| 1970-79 | 71 | 2-star plus | 64.5 | 1,106 | \$ 7,961 | 153 | 105 | 21 | 25 | 149 | \$ 8.09 | 7.8 |
| 1980-89 | 113 | 3-star plus | 74.7 | 1,361 | \$ 8,239 | 157 | 100 | 30 | 26 | 119 | \$ 6.40 | 5.8 |
| 1990-99 | 111 | 4-star | 79.9 | 1,187 | \$ 6,395 | 122 | 57 | 21 | 20 | 108 | \$ 5.58 | 4.7 |
| 2000-2004 | 71 | 3-star plus | 77.5 | 1,388 | \$ 8,435 | 143 | 80 | 35 | 27 | 118 | \$ 7.24 | 5.2 |
| 2005 or later | 28 | 5-star | 91.9 | 1,233 | \$ 4,504 | 92 | 39 | 28 | 25 | 79 | \$ 3.82 | 2.5 |

Home Heating Index:
The energy used per square foot per year divided by the area's heating degree days.



Data Source:
AkWarm ratings from AHFC's Alaska Retrofit Information System (ARIS).

Average energy characteristics of the *current* housing stock by decade built (high data communities) or by pre-/post-retrofit and new construction categories (medium data communities).

Energy Use Intensity (EUI) is the total amount of energy used per year per square foot of floor space.

This is the community's breakdown by fuel type of the energy (BTUs) used for home space heating. It is not the percent of housing using a given fuel in primary space heating devices. Because wood burning devices are inefficient, they may use a significant portion of total energy even if no homes in a community use wood as a primary fuel.

How to Interpret the Profile: Data Sources, Definitions & Clarifications 3

Average building envelope characteristics of the *current* housing stock by decade built (high data communities) or by pre-/post-retrofit and new construction categories (medium data communities).

ACH50: The results of a blower door test to measure building leakiness. Smaller numbers indicate tighter buildings.

R-value: the capacity to resist heat flow. The higher the value, the better the insulator.

U-value: the conductance to heat flow. The lower the value, the better the insulator.

Data Sources: AkWarm ratings from AHFC's Alaska Retrofit Information System (ARIS).

Current Bethel city Housing Envelope Characteristics By Decade Built

| Current Residential Units by Year Built | Number of Records | ACH 50 | Ceiling R | Above Grade Wall R | Below Grade Wall R | Above Grade Floor R | On Grade Floor R | Below Grade Floor R | Door U | Garage Door U | Window U |
|---|-------------------|--------|-----------|--------------------|--------------------|---------------------|------------------|---------------------|--------|---------------|----------|
| OVERALL | 419 | 6.4 | 23 | 17 | 7 | 30 | NR | 2 | 0.36 | 0.27 | 0.54 |
| Pre- 1940 | 7 | 6.7 | 26 | 21 | NR | 30 | NR | NR | 0.30 | NR | 0.40 |
| 1940- 49 | 0 | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR |
| 1950- 59 | 3 | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR |
| 1960- 69 | 15 | 8.8 | 16 | 14 | NR | 21 | NR | NR | 0.44 | NR | 1.65 |
| 1970- 79 | 71 | 8.5 | 20 | 15 | NR | 29 | NR | NR | 0.39 | NR | 0.57 |
| 1980- 89 | 113 | 7.1 | 29 | 17 | NR | 32 | NR | NR | 0.30 | NR | 0.44 |
| 1990- 99 | 111 | 2.7 | 56 | 31 | NR | 50 | NR | NR | 0.19 | 0.12 | 0.29 |
| 2000- 2004 | 71 | 3.6 | 13 | 21 | NR | 36 | NR | NR | 0.27 | 0.23 | 0.40 |
| 2005 or later | 28 | 1.7 | 41 | 22 | NR | 41 | NR | NR | 0.20 | NR | 0.31 |
| BEES 2009 - Climate Zone 8 | | 7.0 | 38 | 30 | 15 | 38 | 15 | 15 | 0.22 | 0.22 | 0.22 |
| BEES 2012 - Climate Zone 8 | | 4.0 | 48 | 30 | 15 | 38 | 15 | 15 | 0.22 | 0.22 | 0.22 |

The number of AkWarm records from each decade built that were used to calculate the averages reported.

"NR" is used when there are insufficient records to protect the confidentiality of the occupants.

Color Coding--

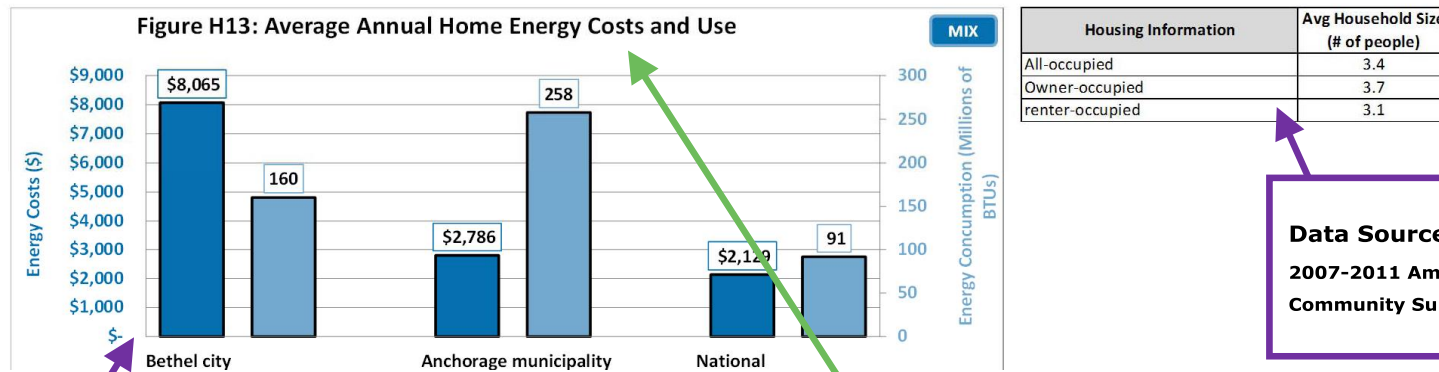
- Green:** the average value meets or exceeds the 2012 BEES requirement.
- Yellow:** value is 75-99% of the 2012 BEES requirement.
- Red:** value is less than 75% of the 2012 BEES requirement.

How to Interpret the Profile: Data Sources, Definitions & Clarifications

4

Communities are categorized in this report by the amount of ARIS data available, and reporting is more extensive for locations with more data. Data quantities are defined as--
High: ARIS records exist for housing units built in 7 of the 9 date ranges use in this report, and there are either more than 50 records or records totaling 20 percent or more of the total number of housing units.
Medium: There are three or more ARIS records. Data are presented for an "overall" group if there are "As Is" ARIS records totaling at least 10% of the community's occupied housing units.
Low: There are fewer than three ARIS records for the location.

Community Template - Data Quantity: High



Data Source:
2007-2011 American Community Survey

Data Sources: Census Area and Anchorage data come from AFHC's Alaska Retrofit Information System.
National figures come from the U.S. Energy Information Administration's 2009 Residential Energy Consumption Statistics (RECS) for "cold"/"very cold" climate regions.

Average annual home energy costs and usage estimates are for all end uses, including space heating, domestic hot water, lighting and appliances. Costs are estimated using January 2013 energy prices and include reductions from the PCE program.

How to Interpret the Profile: Data Sources, Definitions & Clarifications

4

Data Source:
2007-2011
American
Community
Survey.

"Value" is determined by responses to the ACS question: "How much do you think this house and lot, apartment, or mobile home (and lot, if owned) would sell for if it were for sale?"

Household income includes all earnings from salaries, stocks, gifts, public assistance, etc.

Data Source: Median income comes from 2007-2011 ACS estimates; energy costs come from AHFC's Alaska Retrofit Information System (ARIS).

| |
|--|
| Owner-occupied House with Mortgage, Median Value |
| \$226,800 |
| Owner-occupied House without a Mortgage, Median Value |
| \$119,600 |

| Median Annual Household Income | |
|--------------------------------|------------------|
| Housing Units | Household Income |
| All-occupied | \$ 91,302 |
| Renter-occupied | \$ 70,170 |
| Owner-occupied | \$ 107,908 |
| w/ mortgage | \$ 111,167 |
| w/o mortgage | \$ 70,400 |

| Median Household Expenses | | |
|--------------------------------|----------|-----------|
| | Monthly | Annual |
| All-occupied | \$ 1,369 | \$ 16,428 |
| Gross rent | \$ 1,201 | \$ 14,412 |
| Owner-occupied | \$ 1,610 | \$ 19,320 |
| Housing units w/ mortgage | \$ 1,854 | \$ 22,248 |
| Housing units w/out a mortgage | \$ 680 | \$ 8,160 |

| | |
|--|------|
| Avg % of Median Income Spent on Energy | 8.8% |
|--|------|

Figure H14: Affordability - Housing Costs as a Percent of Income

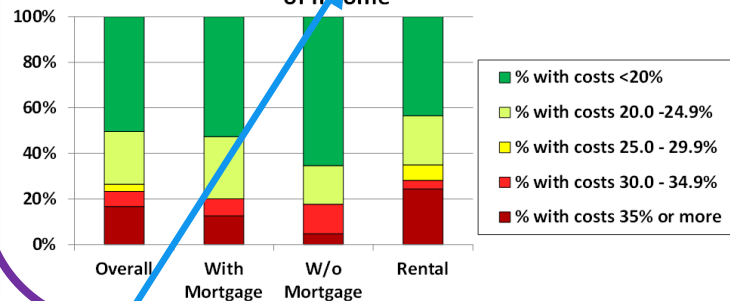
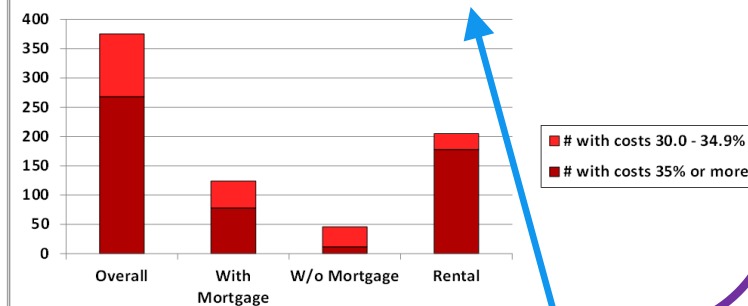


Figure H15: Number of Cost-Burdened Housing Units



Rental housing costs: Contract rent, fuels, utilities.

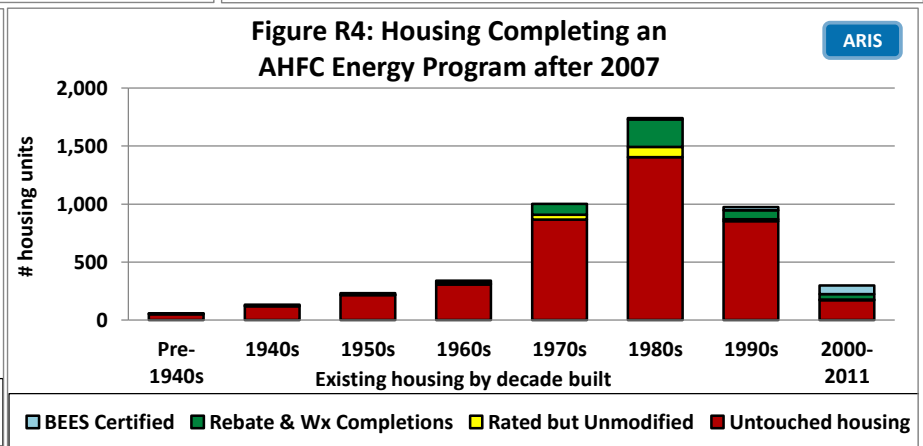
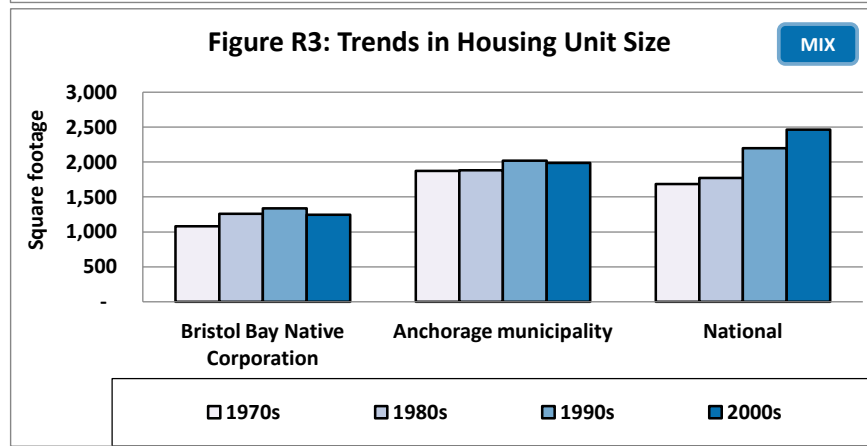
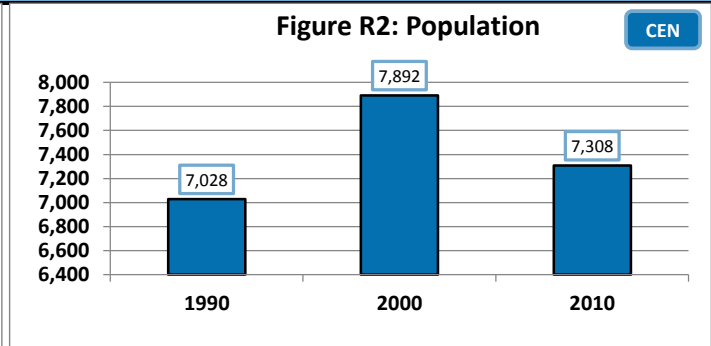
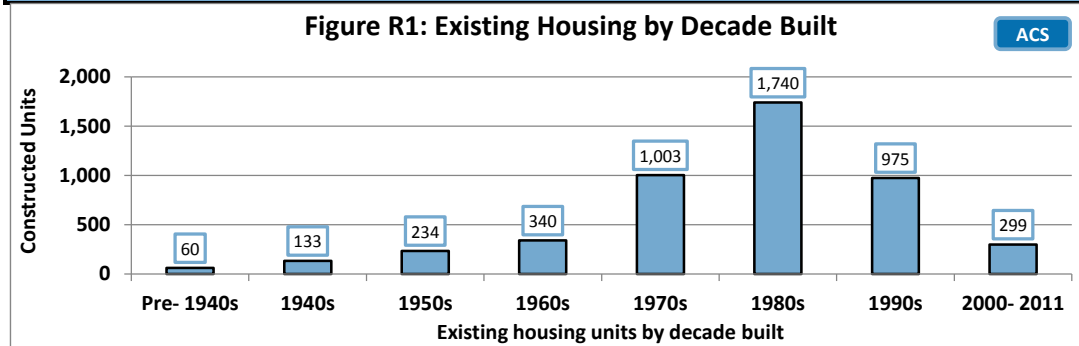
Owner housing costs: Mortgage payments, property taxes, insurance, fuels, utilities, condo fees.

Households are considered "cost burdened" if they spend 30% or more of total household income on housing costs. Households spending more than this amount on housing costs may have difficulty affording basic necessities such as food, transportation, and medical care.

ANCSA Region Profile for: Bristol Bay Native Corporation

Climate Zone (Heating Degree Day Range) Zone 7 (9,000 - 12,600 HDD)

COMMUNITY - Bristol Bay Native Corporation



| Houses Lacking Complete Plumbing or Kitchen Facilities | Households | |
|--|------------|---------|
| | Number | Percent |
| Lack complete plumbing | 273 | 12% |
| Lack complete kitchen | 159 | 7% |

| | |
|------------------------------------|---------|
| Avg Annual Energy Cost with PCE | \$7,054 |
| Avg Annual Energy Cost without PCE | \$8,524 |

| Weatherization Retrofits (funding increased 2008) | |
|---|-------|
| Date Range | Units |
| 2008-2011 | 469 |
| 2003-2007 | 80 |
| 1990-2002 | 356 |

| Estimated Total Annual Community Space Heating Fuel Use | | |
|---|-----------|-----------|
| Fuel Oil | 1,496,072 | (gallons) |
| Natural Gas | - | (ccf) |
| Electricity | 1,142,571 | (kWh) |
| Wood | 2,521 | (cords) |
| Propane | 816 | (gallons) |
| Coal | - | (tons) |

| Housing Need Indicators | Number of units | % Occupied Housing |
|-------------------------|-----------------|--------------------|
| Overcrowded | 338 | 15% |
| Housing cost burdened | 413 | 18% |
| 1 Star Homes | 450 | 20% |

| Housing Stock Estimates | Number of Units |
|---------------------------------|-----------------|
| All Housing | 4,784 |
| All Occupied Housing | 2,278 |
| All Vacant housing | 2,506 |
| Vacant Housing for Sale or Rent | 325 |

OVERCROWDING & VENTILATION - Bristol Bay Native Corporation

Figure R5: Overcrowded Units

ACS

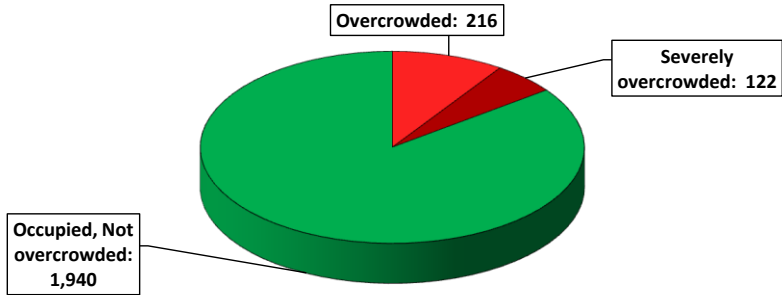


Figure R6: Housing Occupancy

MIX

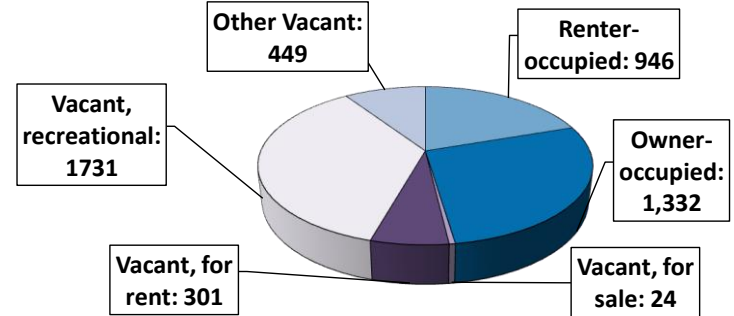


Figure R7: Average Air-Tightness of Current Homes by Decade Built

ARIS

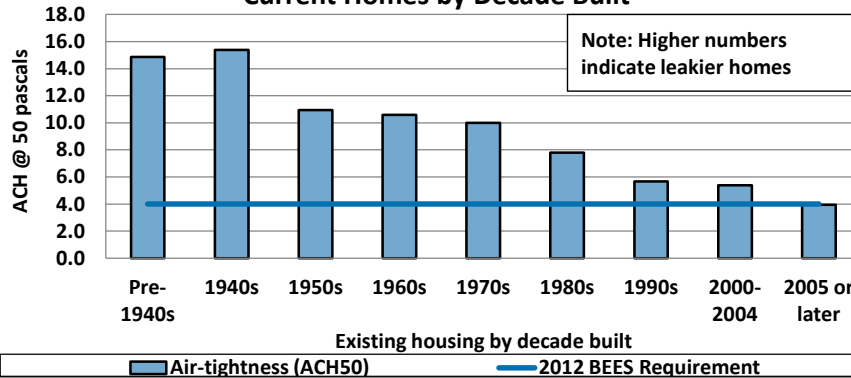


Figure R8: Existing Ventilation Type by Decade Built

ARIS

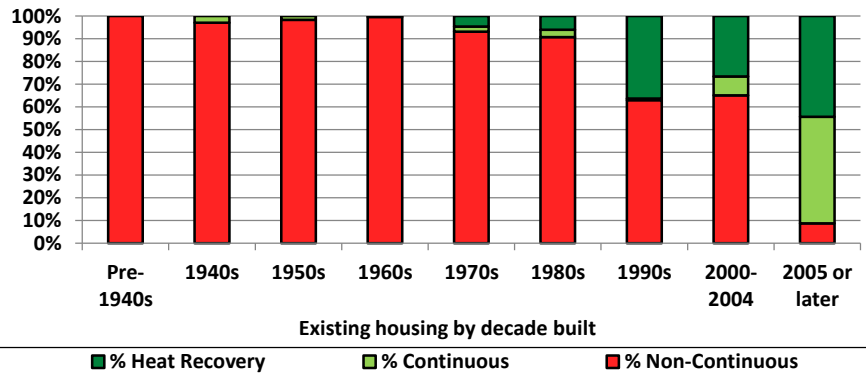


Figure R9: Percent of Housing Stock at High Risk of Moisture and Air Quality Problems

ARIS

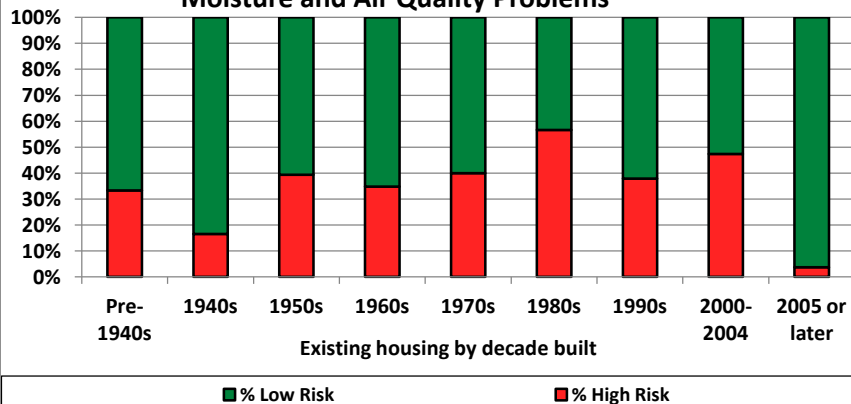
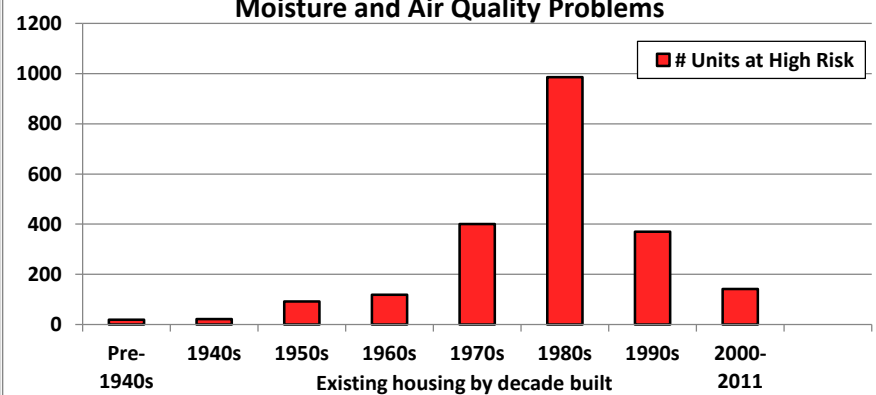


Figure R10: Quantity of Housing Stock at High Risk of Moisture and Air Quality Problems

ARIS



| ENERGY - Bristol Bay Native Corporation | | | | | | | | | | | | | |
|---|---------------------|-------------------------|--------------------------|--------------|------------------------------------|---------------------------------------|--|-----|------------|-----------------------|----------|-------------------------|-----|
| Current Bristol Bay Native Corporation Housing Energy Characteristics By Decade Built | | | | | | | | | | | | | |
| Current Residential Units by Year Built | # of AkWarm Records | Avg Energy Rating Stars | Avg Energy Rating Points | Avg Sq. Feet | Avg. Annual Energy Cost (with PCE) | Avg. Annual Energy Use (million BTUs) | Avg Annual Energy / End Use (million Btus) | | | Avg. EUI (kBtus / SF) | Avg. ECI | Avg. Home Heating Index | |
| | | | | | | | Space Heating | DHW | Appliances | | | | |
| OVERALL | 830 | 2-star plus | 66.9 | 1,232 | \$7,054 | 155 | 102 | 102 | 25 | 27 | 136 | \$6.42 | 8.2 |
| Pre- 1940 | 9 | 1-star plus | 46.9 | 1,985 | \$12,107 | 327 | 279 | 17 | 30 | 208 | \$7.63 | 16.2 | |
| 1940- 49 | 12 | 1-star plus | 45.7 | 1,256 | \$7,394 | 184 | 144 | 16 | 24 | 191 | \$6.49 | 13.5 | |
| 1950- 59 | 21 | 2-star | 58.3 | 1,305 | \$7,578 | 172 | 128 | 19 | 25 | 138 | \$6.10 | 9.2 | |
| 1960- 69 | 34 | 2-star | 53.2 | 1,040 | \$8,607 | 185 | 137 | 20 | 28 | 184 | \$9.32 | 12.5 | |
| 1970- 79 | 143 | 2-star | 57.1 | 1,080 | \$7,227 | 155 | 107 | 23 | 26 | 154 | \$7.55 | 9.5 | |
| 1980- 89 | 350 | 3-star | 71.4 | 1,260 | \$6,675 | 151 | 96 | 27 | 27 | 133 | \$6.12 | 7.8 | |
| 1990- 99 | 130 | 3-star plus | 76.7 | 1,335 | \$6,955 | 144 | 88 | 25 | 26 | 116 | \$5.95 | 6.5 | |
| 2000- 2004 | 48 | 3-star plus | 73.6 | 1,246 | \$5,754 | 132 | 77 | 27 | 28 | 134 | \$5.46 | 8.0 | |
| 2005 or later | 81 | 4-star plus | 88.0 | 1,232 | \$5,433 | 95 | 46 | 24 | 24 | 79 | \$4.41 | 3.6 | |

Figure R11: Current Average Energy Use Intensity and Average Square Footage by Decade Built

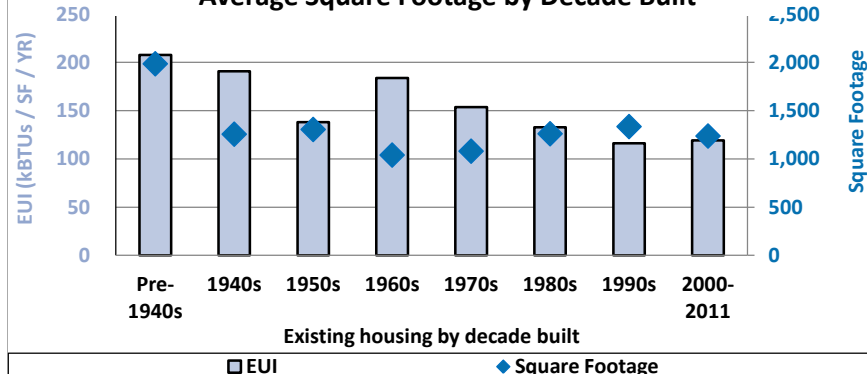
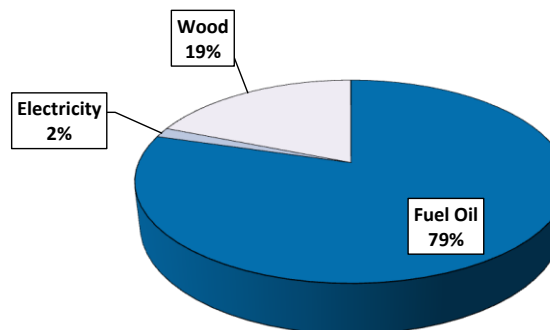


Figure R12: Percent of Total Residential Space Heating Energy by Fuel Type

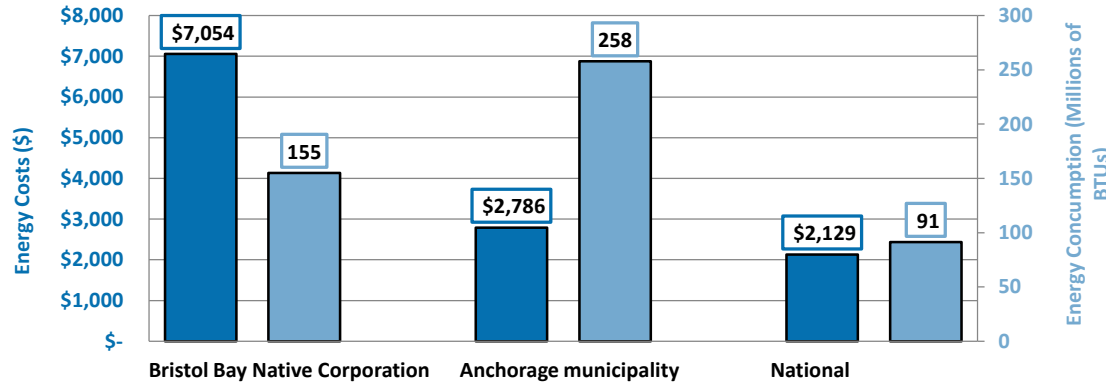


| Current Bristol Bay Native Corporation Housing Envelope Characteristics By Decade Built | | | | | | | | | | | |
|---|---------------------|--------|-----------|--------------------|--------------------|---------------------|------------------|---------------------|--------|---------------|----------|
| Current Residential Units by Year Built | # of AkWarm Records | ACH 50 | Ceiling R | Above Grade Wall R | Below Grade Wall R | Above Grade Floor R | On Grade Floor R | Below Grade Floor R | Door U | Garage Door U | Window U |
| OVERALL | 830 | 8.2 | 23 | 15 | 7 | 17 | 3 | 3 | 0.29 | 0.29 | 0.47 |
| Pre- 1940 | 9 | 14.9 | 12 | 10 | 6 | NR | 2 | 2 | 0.33 | 0.33 | 0.62 |
| 1940- 49 | 12 | 15.4 | 14 | 11 | 3 | 13 | 2 | 3 | 0.33 | 0.33 | 0.62 |
| 1950- 59 | 21 | 10.9 | 17 | 16 | 3 | 11 | 3 | 2 | 0.31 | 0.31 | 0.47 |
| 1960- 69 | 34 | 10.6 | 14 | 13 | 4 | 12 | 2 | 2 | 0.30 | 0.30 | 0.54 |
| 1970- 79 | 143 | 10.0 | 19 | 13 | 4 | 14 | 2 | 2 | 0.31 | 0.31 | 0.53 |
| 1980- 89 | 350 | 7.8 | 25 | 16 | 7 | 19 | 3 | 3 | 0.27 | 0.27 | 0.47 |
| 1990- 99 | 130 | 5.7 | 31 | 18 | 13 | 19 | 3 | 3 | 0.29 | 0.29 | 0.43 |
| 2000- 2004 | 48 | 5.4 | 22 | 17 | 7 | 18 | 3 | 3 | 0.32 | 0.32 | 0.42 |
| 2005 or later | 81 | 3.9 | 46 | 22 | 18 | 24 | 4 | 3 | 0.24 | 0.24 | 0.29 |

| | | | | | | | | | | | |
|----------------------------|-----|----|----|----|----|----|----|----|------|------|------|
| BEES 2009 - Climate Zone 7 | 7.0 | 38 | 21 | 15 | 38 | 15 | 15 | 15 | 0.33 | 0.33 | 0.33 |
| BEES 2012 - Climate Zone 7 | 4.0 | 43 | 25 | 15 | 38 | 15 | 15 | 15 | 0.30 | 0.30 | 0.30 |

AFFORDABILITY - Bristol Bay Native Corporation

Figure R13: Average Annual Home Energy Cost and Use



| Housing Information | Avg Household Size (# of people) |
|---------------------|----------------------------------|
| All-occupied | 3.1 |
| Owner-occupied | 3.4 |
| Renter-occupied | 2.8 |

| Median value of owner-occupied house with mortgage |
|--|
| \$205,300 |

| Median value of owner-occupied house without a mortgage |
|---|
| \$152,400 |

| Median Household Income | |
|-------------------------|-------------------------|
| Housing Units | Annual Household Income |
| All-occupied | \$ 58,836 |
| Renter-occupied | \$ 53,571 |
| Owner-occupied | \$ 66,071 |
| w/ mortgage | \$ 105,000 |
| w/o mortgage | \$ 50,900 |

| Median Housing Costs | | |
|--------------------------------|----------|-----------|
| | Monthly | Annual |
| All-occupied | \$ 759 | \$ 9,108 |
| Gross rent | \$ 924 | \$ 11,088 |
| Owner-occupied | \$ 662 | \$ 7,944 |
| Housing units w/ mortgage | \$ 1,534 | \$ 18,408 |
| Housing units w/out a mortgage | \$ 486 | \$ 5,832 |

Avg % of Median Income Spent on Energy **12.0%**

Figure R14: Affordability - Housing Costs as a Percent of Income

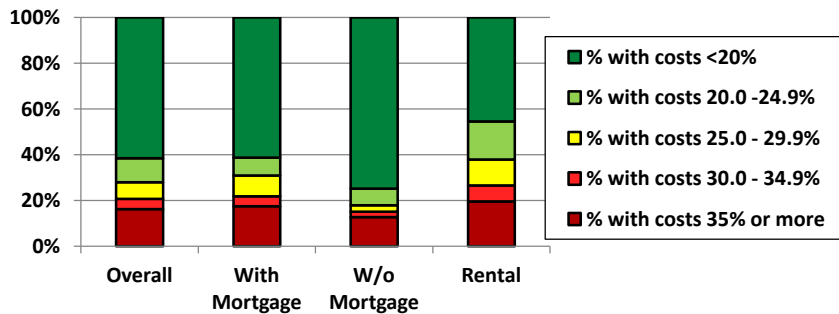


Figure R15: Number of Cost-Burdened Housing Units

