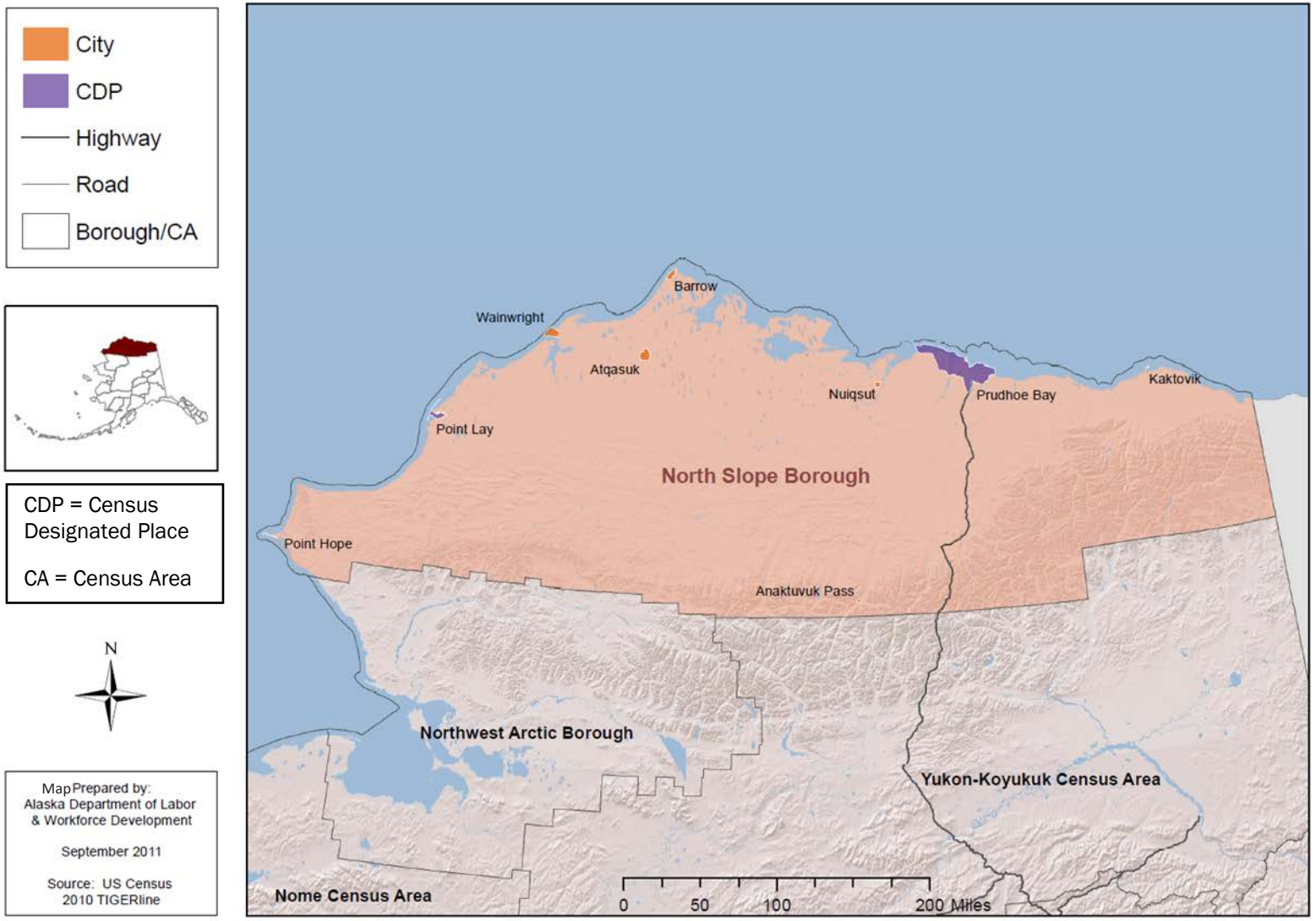
North Slope Borough



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Regional and Statewide Housing Characteristics

This census area summary only includes the highlights of housing characteristics at the census area level. The 2017 Alaska Housing Assessment provides a significant amount of data and analysis at statewide, ANCSA region and census area levels. That assessment provides a statewide analysis of housing characteristics, how they compare to national numbers, and the estimated housing needs. Within the 2017 Alaska Housing Assessment, written summaries are available for each individual ANCSA region and census area, and data profiles are also available characterizing the housing stock from the perspective of community, overcrowding, energy, affordability and need. These different tiers of information and analysis allow researchers, housing authorities, policymakers and others to generate answers to specific questions. For a more detailed discussion of estimating housing need and comparison of methods to previous housing assessments, see Appendix C Selected Methodology in 2017 Alaska Housing Assessment.

North Slope Borough Dashboard

Population: The Alaska Department of Labor and Workforce Development's current (2015) population estimate for the North Slope Borough is 9,895, an increase of 34 percent from 2000.

Housing Units: There are currently 2,513 housing units in the North Slope Borough. Of these, 1,977 are occupied, 123 are for sale or rent, and the remaining 417 are seasonal or otherwise vacant units.

Energy and Energy Costs: The average home in the North Slope Borough is 1,171 square feet and uses 189 million BTUs of energy annually, compared to the statewide average of 227 million BTUs per year. Using AKWarm estimates, the average annual energy cost for homes in the North Slope Borough is $4,088. This is approximately the same as of the statewide average and 1.8 times the national average.

Overcrowding: An estimated 528 (27 percent) of occupied units are either overcrowded (15 percent) or severely overcrowded (12 percent). This is more than eight times the national average, and makes this census area the fifth most overcrowded census area in the state.

Drafty Homes and Ventilation: Approximately 670 (33 percent) of occupied homes in the North Slope Borough are drafty, exceeding seven air changes per hour at 50 Pascals (ACH50). The statewide average is 36 percent. In contrast, there are an estimated 670 occupied housing units (33 percent) in the North Slope Borough that are relatively airtight and lack a continuous ventilation system. These homes are at higher risk of issues with moisture and indoor air quality.

Affordability: On average, approximately 282 (14 percent) of households in the North Slope Borough are cost-burdened, spending more than 30 percent of total household income on housing costs, including rent, utilities and energy. Statewide 31 percent of households are cost-burdened.

Senior Housing: There are an estimated 74 beds in senior housing facilities in the North Slope Borough. Currently the Alaska Department of Labor and Workforce Development estimates there are 472 seniors in the census area and projects an increase to 926 by 2030.

Housing Issues: There are an estimated 711 homes built before the 1980s in the North Slope Borough that have not been retrofitted through a state program in the past 10 years. Approximately 134 (7 percent) homes in the North Slope Borough lack complete kitchens and approximately 210 (11 percent) lack complete bathrooms.

North Slope Borough Housing Need Highlights

One of the primary housing needs in the North Slope Borough is to alleviate overcrowding by providing new affordable housing. Meeting this need will require innovation to overcome challenges of high shipping costs of construction materials, an extreme climate, and high costs of utility infrastructure.

The projected population boom of seniors creates a need for construction of new senior housing units, with the population of people over the age of 65 expected to nearly double by 2030.[1]

Housing Gap: The North Slope Borough has a significant housing gap. The largest component is the very high rates of overcrowding, with an estimated 27 percent of homes being overcrowded or severely overcrowded. This is more than eight times the national average.[2] If construction rates continue at the same pace as the past five years, construction will not keep up with the projected population growth. This will further exacerbate existing overcrowding and affordability issues unless the rate of new residential building construction increases.

Affordable Housing Need: An estimated 14 percent of households are cost-burdened in the North Slope Borough, one of the lowest rates in the state.[3] The fair market rent is relatively low and the median renter wage is relatively high;[4] however, there is a need for more affordable housing in the borough with the regional housing authority, Tagiugmiullu Nunamiullu Housing Authority having a waiting list of more than 300 for their affordable housing programs.[5] Providing new affordable housing is difficult because the cost of shipping building materials and providing utility infrastructure is extremely high.[6]

Senior Housing Needs: The North Slope Borough has slightly less assisted-living housing per senior than the statewide average but a much higher rate of independent senior housing than the Alaska average.[7] The population of seniors in the borough is

[1] Hunsinger, Eddie, Sandberg, E., & Brooks, L. (2016). Alaska Population Projections 2015 to 2045. Alaska Department of Labor and Workforce Development, Research and Analysis Section.
[2] U.S. Census Bureau. (2016). *American Community Survey, 2010–2014 American Community Survey Five-year Estimates*.
[3] Ibid.
[4] Yentel, D., Aurand, A., Emmanuel, D., Errico, E., Leong, G. M., & Rodrigues, K. (2016). *Out of Reach 2016*. National Low Income Housing Coalition. Retrieved from http://nlihc.org/sites/default/files/oor/OOR_2016.pdf
[5] North Slope Borough Department of Planning & Community Services. (2015). Soaring to the Future: Barrow Comprehensive Economic Plan 2015–2035. Retrieved from http://www.north-slope.org/assets/images/uploads/Barrow_Comp_Plan_March_2015_FINAL.pdf
[6] Ibid.
[7] AHFC Senior Housing Office. (2016). Inventory List: Independent Living Homes/Facilities. Revised 5/02/2016. Retrieved from https://www.ahfc.us/senior-support/

projected to nearly double by 2030.[8] Increasing the amount of available senior housing should ensure adequate assisted and independent living facilities for the projected population.

Retrofit Needs: An estimated 33 percent of housing units were built before 1980 and have not had an energy retrofit.[9] Households in the North Slope Borough have lower energy costs than most other regions due to the availability of natural gas and home heating fuel subsidies;[10] however, many homes would likely still benefit from energy retrofit work. An estimated 3.7 percent of housing units in the borough were identified to be in "poor" to "dilapidated" physical condition by the property tax assessors and would likely benefit from retrofit work.

8 Hunsinger, Eddie, Sandberg, E., & Brooks, L. (2016). Alaska Population Projections 2015 to 2045. Alaska Department of Labor and Workforce Development, Research and Analysis Section.
9 See Appendix C: Methodology for details.
10 WH Pacific. (2015). North Slope Borough Regional Energy Plan. Retrieved from http://www.north-slope.org/assets/images/uploads/Feb2015_draft_NSB_Energy_Plan_2.6.15.pdf

North Slope Borough Summary

Community

The North Slope Borough census area lies across northern Alaska. Its communities lie on the coast with the exception of Anaktuvuk Pass, which is located further inland. The North Slope census area makes up the Arctic Slope Native Corporation ANCSA region. The average home size in the census area is 1,164 square feet.

The ratio of dependents, including those under 16 and over 65, relative to the working age population in the North Slope Borough is lower than the statewide average and lower than the national ratio.[11] The North Slope Borough is expected to see an increase in the nonworking age population by 2030.

The ratio of senior age dependents to the working age population is lower than the statewide average and lower than the national average. The North Slope Borough region is projected to see the ratio of senior age dependents to working age dependents increase by 2.2 times by 2030.

There are an estimated 74 dedicated beds in senior housing in the North Slope Borough, with 12 of those dedicated to assisted care living.[12] Currently the Alaska Department of Labor and Workforce Development estimates there are 472 seniors in the census area and projects that there will be 926 senior citizens by 2030.[13] In the North Slope Borough 2.5 percent of senior citizens are in assisted care housing. This is lower than the statewide rate of 2.8 percent of senior citizens in assisted care housing. Nationally, approximately 3.5 percent of senior citizens are in senior living facilities.[14]

Comparison of the growth rates in the senior age (65+) segment of the population to the dependent age (0 to 15) population indicate that in the North Slope Borough region the primary pressure for new housing over the next 15 years will come from households with elderly people.

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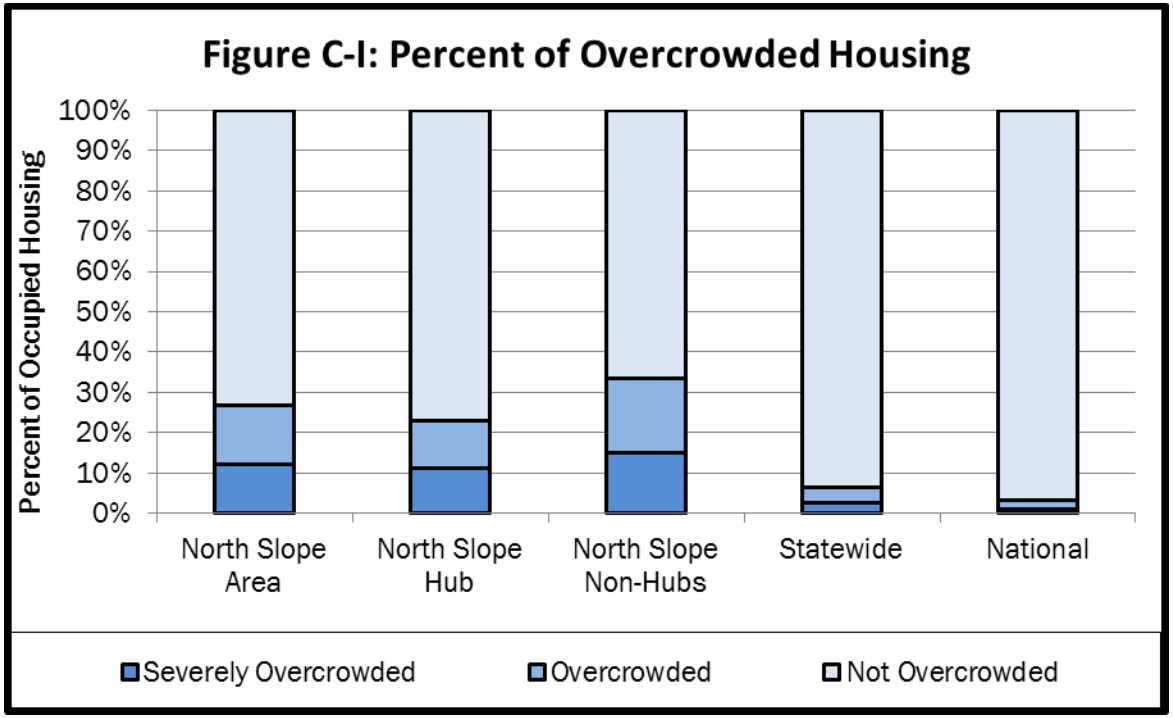
[11] Hunsinger, Eddie, Sandberg, E., & Brooks, L. (2016)."Alaska Population Projections 2015 to 2045." Alaska Department of Labor and Workforce Development, Research and Analysis Section.
U.S. Census Bureau. (2016). *American Community Survey, 2010-2014 American Community Survey Five-year Estimates*.
[12] AHFC Senior Housing Office. (2016). *Inventory List: Independent Living Homes/Facilities*. Revised 5/02/2016. Retrieved from https://www.ahfc.us/senior-support/
[13] Hunsinger, Eddie, Sandberg, E., & Brooks, L. (2016). "Alaska Population Projections 2015 to 2045." Alaska Department of Labor and Workforce Development, Research and Analysis Section.
[14] Ribbe, M., Ljunggren, G., Steel, K., Topinkova, E., Hawes, C., Ikegami, N., ... Jonnson, P. (1997). "Nursing Homes in 10 Nations: A Comparison Between Countries and Settings." *Age and Ageing. 26(S2), 3-12.*

Overcrowding[15]

The North Slope Borough is the fifth most overcrowded census area in Alaska. Approximately 27 percent of households are overcrowded in the census area as a whole. The rate of overcrowding in the North Slope Borough is more than 4.2 times the statewide average (6.4 percent) and approximately 8.1 times more than the national average (3.3 percent).



Overcrowding in the non-hub communities is more prevalent than that found in the hub community. Overcrowding is defined as households with more than 1 person per room. Severe overcrowding is defined as households with more than 1.5 persons per room. Non-hub communities in the North Slope Borough average approximately one-and-a-half times the overcrowding rate of the hub community, with approximately 33 percent of households overcrowded compared to the hub community's 23 percent. Further, 14.9 percent of non-hub community households are severely overcrowded. This is 14.9 times more than the national average.

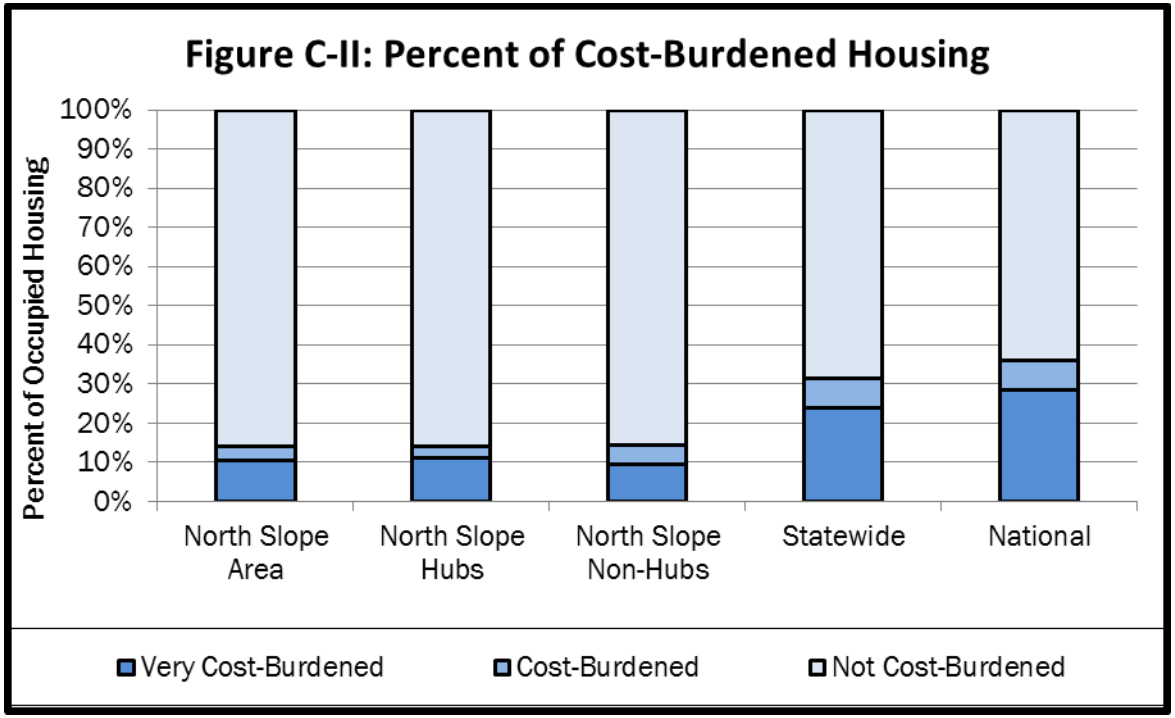
Approximately 5 percent of housing units in the North Slope Borough are available for sale or rent. The percentage of units for sale or rent in the non-hub communities (3 percent) is less than in the hub communities (6 percent). Additionally, 17 percent of housing units in the North Slope Borough are considered vacant because they are used for seasonal, recreational or other non-year-round purposes.

[15] U.S. Census Bureau. (2016). *American Community Survey, 2010-2014 American Community Survey Five-year Estimates*.

Affordability[16]

According to estimates from the U.S. Census American Community Survey (ACS), 14 percent of households in the North Slope Borough are cost-burdened, that is, spend more than 30 percent of their income on housing costs. Non-hub communities have approximately the same percentage (14 percent) of households that are cost-burdened than the hub community of Barrow (14 percent). The rate of cost-burdened households in the North Slope Borough is 40 percent of the national average (36 percent).

The median household income in the North Slope Borough is $74,609. This is higher than the statewide median of $71,829. The national median is $53,482.



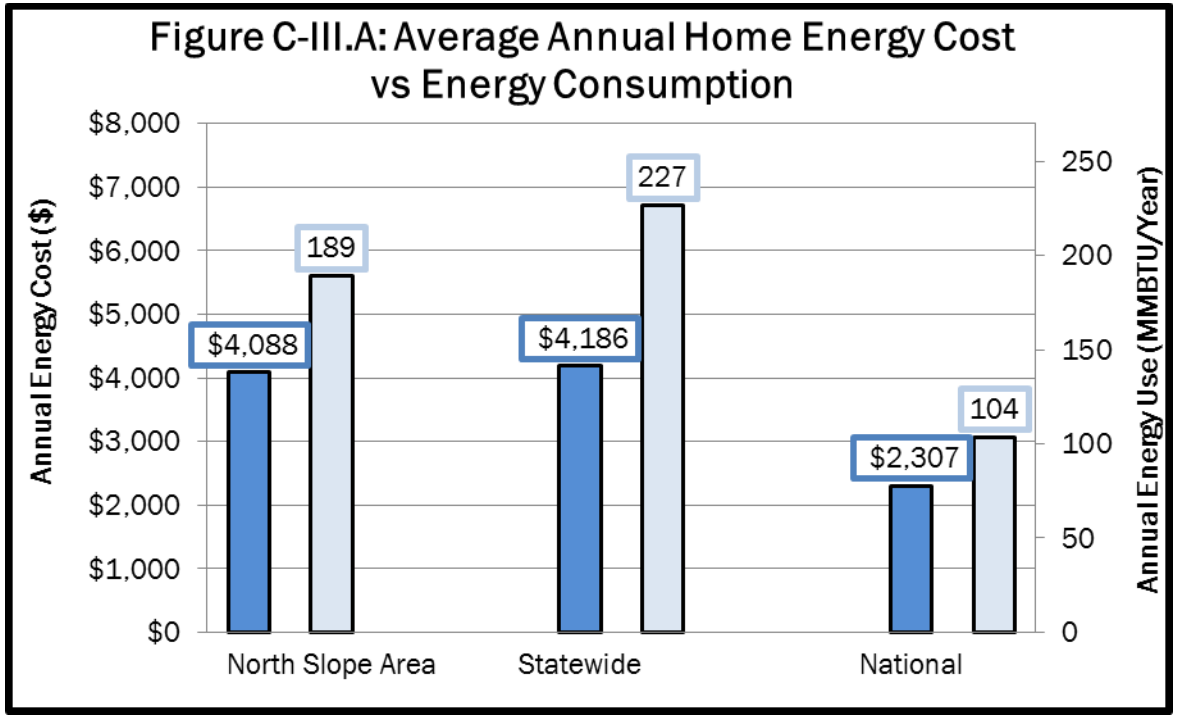
[16] U.S. Census Bureau. (2016). *American Community Survey, 2010-2014 American Community Survey Five-year Estimates*.

Energy[17]

Single-family Units

Single-family homes in the North Slope Borough consume an average of 189 million BTUs per year, the 12th highest energy consumption in the state. This average annual energy consumption is 83 percent of the statewide average of 227 million BTUs and 1.8 times the national average.

Energy costs for single-family homes in the North Slope Borough average $4,088 annually. This is the ninth lowest in the state. North Slope Borough energy costs are 98 percent of the statewide average and 1.8 times the national average.



With an average footprint of 1,171 square feet, single-family homes in the North Slope Borough are smaller than the statewide average of 1,955 square feet. Nationally the average house size is 2,425 square feet.

The energy use intensity (EUI), or annual energy used per square foot, for a single-family home in the North Slope Borough averages 170,000 BTUs per square foot, the second highest in the state. This is 1.3 times the statewide average of 128,000 BTUs per square foot and four times the national average. The energy cost index (ECI), or annual energy cost per square foot, for a single-family home in the North Slope Borough averages $3.49, the 10th highest in the state. This is 1.5 times the statewide average of $2.31 per square foot and 3.7 times the national average of $0.95 per square foot.

The home heating index (HHI) in the North Slope Borough for the average single-family home is 6.45 BTUs/ft^2/HDD. This is the lowest in the state. The HHI for the North Slope Borough is lower than the statewide average of 8.83 BTU/ft^2/HDD. The normalized cost of energy, in terms of dollars per million BTUs, for a single-family home in the North Slope Borough averages $18.70, the

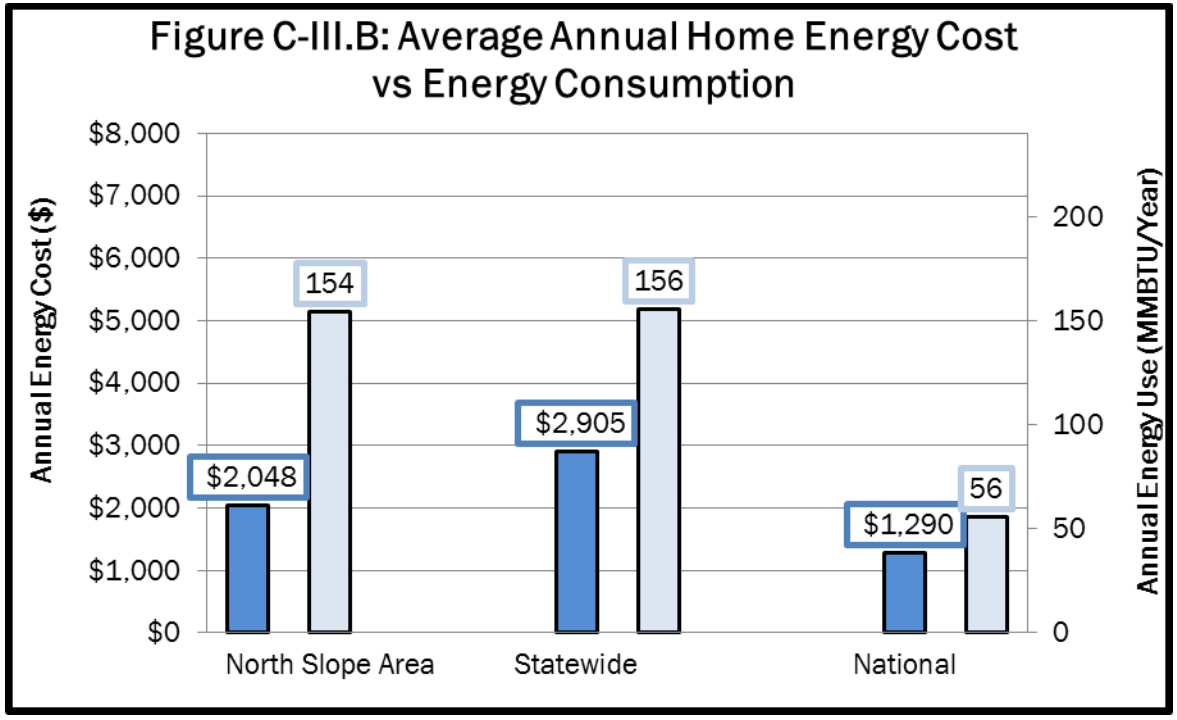
[17] See Appendix C: Methodology for details.

seventh lowest in the state. This is 1.2 times the statewide average of $15.80 per million BTUs and 84 percent of the national average of $22.27 per million BTUs.

Multifamily Units

Multifamily housing units in the North Slope Borough consume an average of 154 million BTUs per year, the sixth highest energy consumption in the state. This average annual energy consumption is approximately the same as the statewide average of 156 million BTUs and 1.8 times the national average.

Energy costs for multifamily housing units in the North Slope Borough average $2,048 annually. This is the second lowest in the state. North Slope Borough energy costs are 71 percent of the statewide average and 1.6 times the national average.



With an average footprint of 1,034 square feet, multifamily housing units in the North Slope Borough are smaller than the statewide average of 1,284 square feet. Nationally the average unit in multifamily housing is 930 square feet.

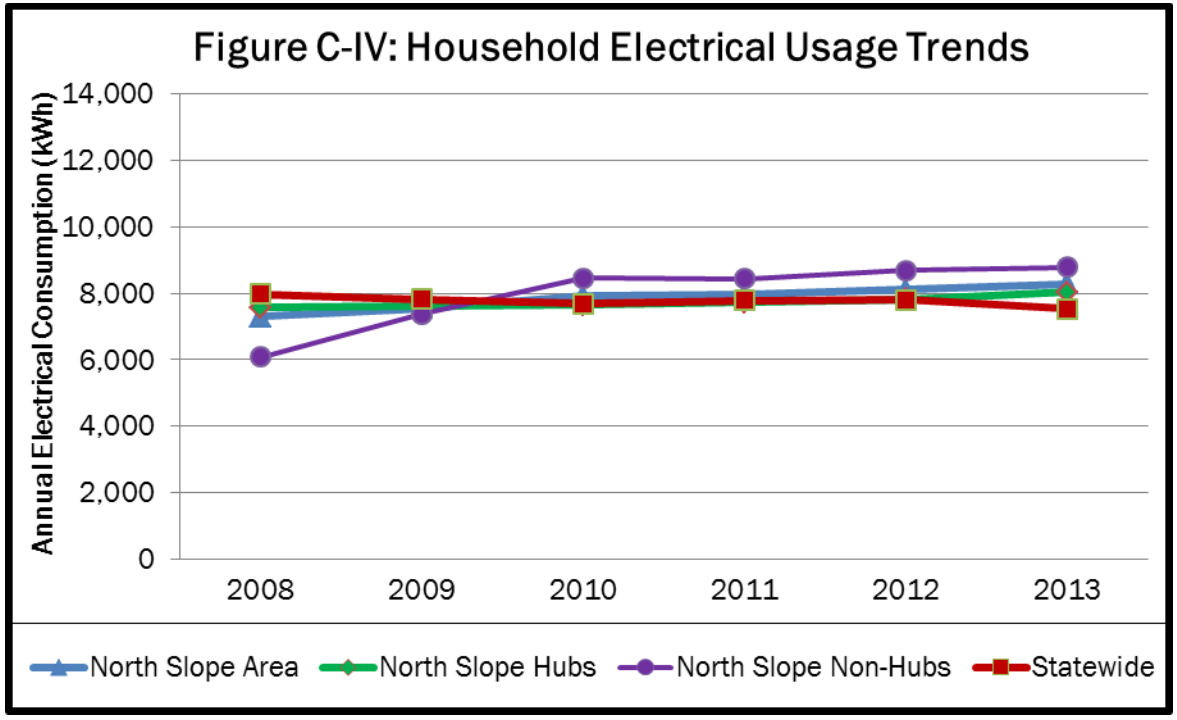
The energy use intensity (EUI), or annual energy used per square foot, for a multifamily housing unit in the North Slope Borough averages 162,000 BTUs per square foot, the highest in the state. This is 1.3 times the statewide average of 128,000 BTUs per square foot and 2.7 times the national average. The energy cost index (ECI), or annual energy cost per square foot, for a multifamily housing unit in the North Slope Borough averages $1.98, the second lowest in the state. This is 87 percent of the statewide average of $2.27 per square foot and 1.4 times the national average of $1.39 per square foot.

The home heating index (HHI) in the North Slope Borough for the average multifamily housing unit is 5.79 BTUs/ft^2/HDD. This is the 10th lowest in the state. The HHI for the North Slope Borough is lower than the statewide average of 8.28 BTU/ft^2/HDD. The normalized cost of energy, in terms of dollars per million BTUs, for a unit in multifamily housing in the North Slope Borough

averages $5.64, the lowest in the state. This is 44 percent of the statewide average of $12.79 per million BTUs and 24 percent of the national average of $23.12 per million BTUs.

Historical Household Electricity Usage[18]

In 2013 the average household in the North Slope Borough consumed 8,286 kWh of electricity annually. This is approximately 14 percent more than in 2008. Hub communities in the census area averaged 8,044 kWh per year. This is an increase of 6 percent over the same period. In contrast, non-hub communities averaged 8,780 kWh in 2013, an increase of 44 percent since 2008. Statewide, the average household consumed 7,540 kWh of electricity in 2013, a decrease of 5 percent since 2008.



Inefficient and Older Homes[19]

Approximately 93 (5 percent) of the occupied homes in the North Slope Borough are estimated to be 1-star homes. A 1-star home uses approximately four times more energy than if built to AHFC's Building Energy Efficiency Standard (BEES). Statewide, approximately 14,600 (6 percent) of occupied homes are estimated to be 1-star homes.

Older homes built before 1980 that have not been retrofitted are potentially homes in need. Approximately 33 percent of all homes in the North Slope Borough fit these two criteria. This is lower than the statewide average of 39 percent.

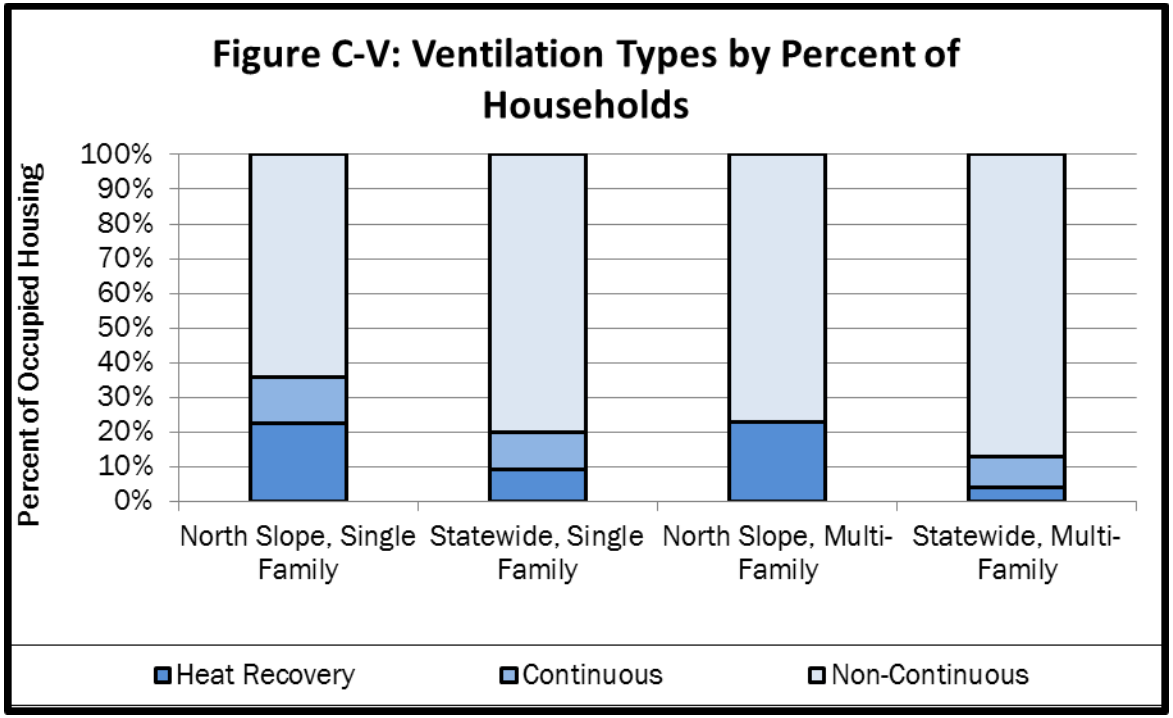
[18] Fay, G., Villalobos Melendez, A. & West. C. (2014). *Alaska Energy Statistics: 1960-2011*. UAA Institute of Social and Economic Research. Retrieved from http://iser.uaa.alaska.edu/Publications/2013_12-AlaskaEnergyStatistics2011Report_Final_2014-04-30.pdf

[19] See Appendix C: Methodology for details.

Housing Condition[20]

Ventilation

Approximately 36 percent of the occupied homes in the North Slope Borough region have heat recovery or continuous mechanical ventilation systems installed. This is the second highest in the state. Statewide approximately 20 percent of occupied homes have continuous mechanical ventilation systems, with or without heat recovery.



Indoor Air Quality

A tight home with no or inadequate ventilation has an increased risk of issues with indoor air quality or moisture. The North Slope Borough has the 10th lowest percentage of housing units in the state that are both relatively airtight and lack continuous mechanical ventilation. Approximately 437 (22 percent) of the occupied homes in the North Slope Borough are estimated to be at moderate risk, with 214 (11 percent) estimated to be at high risk. Statewide, approximately 30 percent of occupied homes are estimated to be at moderate risk and 26 percent at high risk.

Draftiness

To quantify drafty homes, the following definitions were used. Drafty homes will see test results of between 7 and 12 air changes per hour at 50 Pascals (ACH50) when subjected to a blower door test. Very drafty homes will see test results of greater than 12 ACH50. Approximately 459 (23 percent) of the occupied homes in the North Slope Borough are estimated to be drafty, with 178 (9 percent) estimated to be very drafty. Statewide approximately 24 percent of occupied homes are estimated to be drafty and 12 percent are estimated to be very drafty.

[20] See Appendix C: Methodology for details.