

SOUTHEAST ALASKA ENERGY DEMAND

A DRAFT INVENTORY OF ELECTRICITY,
SPACE HEATING, AND TRANSPORTATION
FUEL DEMAND IN 26 COMMUNITIES

Prepared for



Version 1.0

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Introduction

Background

This report and the accompanying data sets were researched and documented between November 21st, 2012 and March 25th, 2013 to support the efforts of the Juneau Economic Development Council's Southeast Cluster Initiative, supported by program funding from the United States Forest Service. This project supports an Action Initiative of the Renewable Energy Seed Cluster, whose goal is to conduct a Market-driven Renewable Energy Economic Model of Southeast Alaska. All deliverables were created as part of a small project (120 hours funded) with the expectation that these initial draft data will be updated as more detailed and accurate data become available. This is the first version of the report that has been published--version 1.0.

Report Overview

This report synthesizes existing data on the electricity, heating, and transportation fuel demand of 26 Southeast Alaska communities. Data were collected from a wide range of universities, state agencies, energy providers, and publicly available documents; a detailed list of sources is available in the Sources Cited section. Specific data requests were also sent to all major heating and transportation fuel distributors, Alaska Department of Revenue, Alaska Department of Transportation - State-wide Aviation, Alaska Marine Highway System, Cold Climate Housing Research Center, US Bureau of Transportation Statistics Research and Innovative Technology Administration (BTS RITA), US Corps of Engineers Waterborne Commerce Statistics, and the US Forest Service.

Sections for each of the 26 communities contain a summary of the demand for electricity, space heating fuels, and transportation fuels. These totals include both the local/internal fuel use as well as the approximate resident ferry and flight fuel usage for each community. Data would ideally be disaggregated by end-user (e.g. residential, commercial, and government) and contain historical time series data at a specific enough temporal scale to fully understand a community's energy demand (e.g. average hourly electricity consumption by season).

However, significant data gaps were found to exist in the current literature in large part due to non-disclosure issues for many private energy providing companies; this is most prevalent for heating fuel as well as transportation fuels. Approximations have been made when data were found to be unavailable or inaccessible--documentation of any approximations that were made are available in each community's section. Improvements to the data quality and the efficiency of data collection are important considerations for future efforts. Government-industry collaboration (or reporting requirements) appear necessary for future, continuous, updating of this report.

Communities in Southeast Alaska

There are 42 communities (also referred to as places) listed in the Alaska Department of Labor and Workforce Development (DOLWD) annual population tables. However, energy data is typically available for approximately 30 communities from most sources. For example, the Alaska Department of Commerce, Community, and Economic Development (DCCED) publishes

data on 29 places in Southeast Alaska and the University of Alaska Anchorage Institute of Social and Economic Research (ISER) publishes energy data on 26 places in Southeast Alaska.

For this analysis we have provided energy demand summaries for 26 communities in Southeast Alaska--representing 99 percent of the region's population. The 16 places excluded from this report that are included in the DOLWD population data are as follows (with 2011 populations in parentheses): Mosquito Lake (311), Mud Bay (213), Hyder (94), Covenant Life (85), Kasaan (69), Port Alexander (62), Port Protection (53), Edna Bay (50), Lutak (49), Kupreanof (27), Game Creek (15), Point Baker (14), Excursion Inlet (14), Loring (4), Hobart Bay (1), and Whitestone Logging Camp (0).

Future Research

Future research tasks that would complement this report are listed below along with estimated time requirements in parentheses:

1. Reviewing, updating, and improving data sets every 6-12 months--improvements could focus on ensuring that the highest quality data is utilized as inputs to this report, increasing the number of communities to include all 42 places listed in the DOLWD population data set, increasing the frequency of data (e.g. seasonality and daily fluctuations), and disaggregating energy demand by end-user (e.g. residential, commercial, and government) for all communities (320 hours);
2. Determining a more effective way to obtain data directly from energy providers--especially space heating and transportation fuels (80 hours);
3. Measuring the prices of various energy sources throughout the year for all communities, energy types, and end-users (e.g. residential vs. government contracts) (120 hours);
4. Measuring the existing energy supply, and its seasonality, for all communities in Southeast Alaska (320 hours);
5. Measuring the potential substitutability of alternative energy opportunities for all communities (e.g. percentage of space heating that could transition from heating fuel to wood) (80 hours, plus the time required to measure the existing energy supply (#4 above));
6. Conducting price elasticity of demand analyses for each community and energy type (160 hours, plus the time required to improve data quality and detail);
7. Measuring the percent of income spent on energy and the proportion of energy expenditure that permanently leaves each community's economy (e.g. importing fuel from other states or countries) (80 hours); and
8. Measuring the multiplier effects of existing energy industries in each economy and the potential multiplier effects for a range of proposed policies or projects (240 hours).

Southeast Alaska

OVERVIEW

Southeast Alaska's energy demand is shaped largely by its remote, mountainous geography in a coastal temperate rainforest. The persistently cool and wet weather increases the demand for space heating throughout much of the year. Additionally, 34 out of the 42 communities (95% of the population) do not have road transportation that connects with communities outside Southeast Alaska; requiring above average utilization of transportation by air and water sources. Finally, key economic industries such as fishing, oil and gas, tourism, and government require extensive use of marine and aviation fuels.

In 2012 an estimated 74,423 residents lived in Southeast Alaska (DOLWD, 2013). Of the 42 places in Southeast Alaska listed by DOLWD 74 percent lived in Juneau, Sitka, and Ketchikan and 91 percent lived in the ten largest communities.

Southeast Alaska covers 500 miles from Dixon Entrance in the south to Yakutat Bay in the north and is up to 125 miles wide. The 35,560 square miles of Southeast Alaska are comprised of 25 percent muskeg and scrub forest, 34 percent commercial forest, and 41 percent rock or covered with ice; there are approximately 1,100 islands in the Alexander Archipelago of Southeast Alaska (Source: Mackovjak, 2010).

Hydroelectric power generation serves as the major source of electricity for Southeast Alaskan communities due to the regions plentiful freshwater supply from an estimated 5,000 rivers and streams (approximately 20,000 miles), rainfall ranging from 50 inches per year in upper Lynn Canal to more than 200 inches per year near Dixon Entrance, snowfall, and glacial runoff. Additionally, the steep topography grade avoids significant negative impacts to anadromous fish habitat. Also, a lack of low cost fossil energy sources--due to the disparate and remote locations of Southeast Alaskan communities--requires that communities utilize hydropower or diesel generators. Diesel electricity generation serves as a back-up for communities served by hydroelectric facilities and diesel provides the main source of electricity for many smaller communities that are not connected via interties with communities where hydroelectricity is economically feasible.

Heating fuel, wood, and electricity provide nearly all of the regions space heating and there is no natural gas pipeline for the region.

Transportation fuels are comprised of the typical petroleum products: gasoline as well as diesel for road, marine, and air transportation.

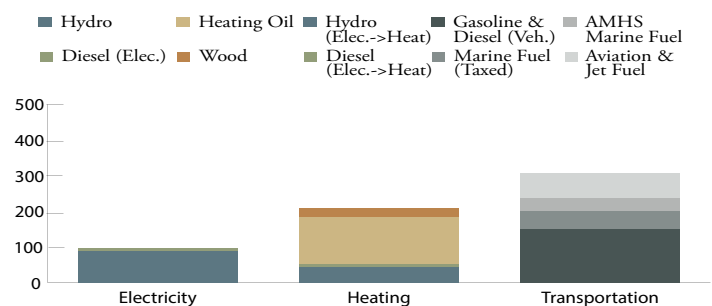
TOTAL LOCAL ENERGY DEMAND

Total local energy demand for this report consists of a community's electricity demand, space heating demand, and transportation fuel demand. The summary values for Southeast Alaska are the summation of the data from the 27 communities provided in later sections of this report that represent 99 percent of the region's total population. These estimates provide an initial overview of the region's energy demand and hopefully lay the foundation for future efforts to improve the detail and accuracy of these data.

Table 1: Southeast Alaska Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	2,308,235	1,173,726	-	3,481,961
Diesel (Electricity)	240,954	220,208	-	461,162
Heating Fuel Oil	-	3,503,627	-	3,503,627
Wood	-	632,374	-	632,374
Gasoline & Diesel (Vehicles)	-	-	4,017,800	4,017,800
Marine Fuel (Taxed)	-	-	1,262,737	1,262,737
AMHS Marine Fuel	-	-	996,319	996,319
Jet Fuel	-	-	1,868,962	1,868,962
Aviation Fuel	-	-	5,660	5,660
Total	2,549,189	5,529,935	8,151,478	16,230,601

Figure 1: Southeast Alaska Energy Demand by Fuel Type (MMBtu per Household)



ELECTRICITY

Electricity in Southeast Alaska is predominantly generated with hydropower, with back-up diesel generators. However, many smaller communities that are not connected to an intertie rely solely on diesel. Annual electricity demand by community varies significantly between communities with some communities relying on electricity to complement space heating from heating fuel and wood fuel. Total electricity use in Southeast Alaska was 2.5 million MMBtu (96 MMBtu/household).

Table 2: Electricity Providers by Place, 2010

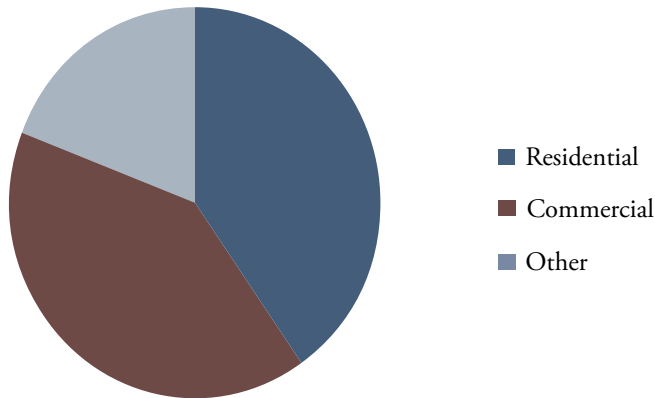
Community	Utility Company	Plant Name	Total Capacity (kW)	Gas Turbine	Internal Combustion	Hydroelectric	PCE
Angoon	IPEC	Angoon	1,500		1,500		Yes
Chilkat Valley	IPEC	Chilkat Valley	1,100		1,100		Yes
Coffman Cove	AP&T	Coffman Cove	835		835		Yes
Craig	AP&T	Black Bear Lake	4,500			4,500	Yes
Craig	AP&T	Craig	4,400		4,400		Yes
Craig	AP&T	Viking	1,000		1,000		Yes
Elfin Cove	Elfin Cove	Elfin Cove	347		347		Yes
Gustavus	Gustavus	Falls Creek	1,642		842	800	Yes
Haines	AP&T	Lutak	6,200		6,200		Yes
Haines	IPEC	10 Mile	550			550	No
Hollis	AP&T	Hollis	345		345		Yes
Hoonah	IPEC	Hoonah	2,400		2,400		Yes
Hydaburg	AP&T	Hydaburg	1,000		1,000		Yes
Juneau	AEL&P	Annex Creek	4,000			4,000	No
Juneau	AEL&P	Auke Bay	36,200	33,700	2,500		No
Juneau	AEL&P	Gold Creek	9,700		8,100	1,600	No
Juneau	AEL&P	Lake Dorothy	14,300			14,300	No
Juneau	AEL&P	Lemon Creek	61,700	37,200	24,500		No
Juneau	AEL&P	Salmon Creek 1	8,500			8,500	No
Juneau	AEL&P	Snettisham	78,200			78,200	No
Kake	IPEC	Kake	2,500		2,500		Yes
Kasaan	AP&T	Kasaan	360		360		Yes
Ketchikan	KPU	Beaver Falls	5,400			5,400	No
Ketchikan	KPU	Ketchikan	4,200			4,200	No
Ketchikan	KPU	S W Bailey	25,900		25,900		No
Ketchikan	KPU	Silvis	2,100			2,100	No
Ketchikan	KPU	Swan Lake	22,400			22,400	No
Ketchikan	SEAPA	Tyee Lake	20,000			20,000	No
Klawock	AP&T	South Fork	2,000			2,000	Yes
Klukwan	IPEC	Klukwan	675		675		Yes
Metlakatla	MP&L	Centennial	3,300		3,300		No
Metlakatla	MP&L	Chester Lake	1,000			1,000	No
Metlakatla	MP&L	Purple Lake	3,900			3,900	No
Naukatik Bay	AP&T	Naukatik Bay	488		488		Yes
Pelican	Pelican	Pelican	1,700		1,000	700	Yes
Petersburg	Petersburg	Blind Slough	12,300		10,700	1,600	No
Sitka	Sitka	Blue Lake	7,000			7,000	No
Sitka	Sitka	Green Lake	18,600			18,600	No
Sitka	Sitka	Jarvis Street	12,100		12,100		No
Skagway	AP&T	Dewey Lake	4,400		3,400	1,000	Yes
Skagway	AP&T	Goat Lake	4,000			4,000	Yes
Skagway	AP&T	Kasidaya Creek	3,000			3,000	Yes
Tenakee Springs	Tenakee Springs	Tenakee Springs	241		241		Yes
Thorne Bay	AP&T	False Island	1,300		1,300		Yes
Thorne Bay	AP&T	Thorne Bay	1,000		1,000		Yes
Whale Pass	AP&T	Whale Pass	250		250		Yes
Wrangell	Wrangell	Wrangell	8,500		8,500		Yes
Yakutat	Yakutat Power	Yakutat	3,700		3,700		Yes

There are 21 communities in Southeast Alaska that participate in the Power Cost Equalization Program. Communities that participate in this program usually generate at least half of their electricity from higher cost diesel power generation. In total, 96 percent of Southeast Alaska's electricity generation in 2011 was from hydropower (Source: ISER, 2012).

A detailed listing of the existing diesel facilities is available in section 4.2.2.2 of the Southeast Alaska Integrated Resource Plan (Source: Black and Veatch, 2012).

Electricity sales in Southeast Alaska were purchased evenly between residential (1.02 million MMBtu) and commercial (1.03 million MMBtu) customers with 484,000 MMBtu purchased by community and governmental facilities and industrial customers (Source: ISER, 2012).

Figure 2: Southeast Alaska Electricity Demand By End-User



Community electricity sales by end use vary throughout the region. Residential sales contribute between 23 percent to 70 percent and commercial sales contribute between 13 and 66 percent of Southeast Alaskan communities' total electricity use. Southeast Alaska communities average 40 percent of their electricity usage for residential purposes, 41 percent for commercial purposes, and 19 percent for 'other' purposes.

Table 3: Community Electricity Sales by End-Use, 2010 (MWh)

Community	Residential	Commercial	Other	Total
Angoon	968	599	293	1,861
Coffman Cove	536	111	140	787
Craig	3,821	5,633	2,202	11,655
Elfin Cove	73	164	12	248
Gustavus	912	582	332	1,826
Haines	5,534	4,891	2,344	12,769
Hollis	574	277	48	899
Hoonah	1,798	1,840	787	4,425
Hydaburg	681	283	410	1,373
Juneau	139,936	126,493	98,281	364,710
Take	1,057	1,203	275	2,535
Kasaan				
Ketchikan	70,815	70,657	23,242	164,714
Klawock	2,297	4,980	1,049	8,326
Klukwan	221	92	62	375
Metlakatla	8,455	9,881	60	18,396
Naukati Bay	296	57	72	425
Pelican	333	182	204	718
Petersburg	20,389	8,580	21,706	50,675
Sitka	48,297	58,422	5,563	112,282
Skagway	3,047	7,019	2,101	12,167
Tenakee Springs	239	84	37	360
Thorne Bay	1,334	971	868	3,174
Whale Pass	160	56	13	229
Wrangell	14,183	19,585	-	33,768
Yakutat	1,408	3,549	1,154	6,111
Total	327,363	326,190	161,256	814,809

Source: ISER 2012

Table 4: Electricity Prices by Population, 2010

\$/kWh	Pre-PCE Adjustment	Post-PCE Adjustment
< \$0.10	13,434	13,434
\$0.10-\$0.20	42,843	49,567
\$0.20-\$0.30	5,781	2,387
\$0.30-\$0.40	-	163
\$0.40-\$0.50	630	-
\$0.50-\$0.60	804	-
\$0.60-\$0.70	2,124	-
\$0.70-\$0.80	18	-

Source: ISER, 2012

The average residential electricity price in 2010 was 16.97 cents/kWh in Southeast Alaska, with a range from 9.2 cents/kWh to 31.51 cents/kWh (after including PCE adjustments) (Source: Black and Veatch, 2012).

Table 5: Community Elect. Prices by End-Use, 2010 (\$/MWh)

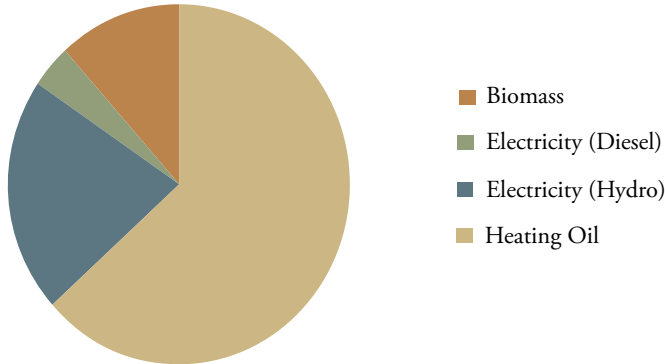
Community	Residential	Commercial	Other	Total
Angoon	\$0.62	\$0.62	\$0.62	\$0.62
Coffman Cove	\$0.45	\$0.45	\$0.45	\$0.45
Craig	\$0.24	\$0.24	\$0.24	\$0.24
Elfin Cove	\$0.73	\$0.73	\$0.73	\$0.73
Gustavus	\$0.45	\$0.45	\$0.45	\$0.45
Haines	\$0.22	\$0.22	\$0.22	\$0.22
Hollis	\$0.24	\$0.24	\$0.24	\$0.24
Hoonah	\$0.62	\$0.62	\$0.62	\$0.62
Hydaburg	\$0.24	\$0.24	\$0.24	\$0.24
Juneau	\$0.12	\$0.10	\$0.09	\$0.11
Take	\$0.62	\$0.62	\$0.62	\$0.62
Kasaan				
Ketchikan	\$0.10	\$0.10	\$0.08	\$0.10
Klawock	\$0.23	\$0.23	\$0.23	\$0.23
Klukwan	\$0.62	\$0.62	\$0.62	\$0.62
Metlakatla	\$0.09	\$0.12	\$0.18	\$0.11
Naukati Bay	\$0.55	\$0.55	\$0.55	\$0.55
Pelican	\$0.68	\$0.68	\$0.68	\$0.68
Petersburg	\$0.10	\$0.12	\$0.11	\$0.11
Sitka	\$0.09	\$0.09	\$0.09	\$0.09
Skagway	\$0.22	\$0.22	\$0.22	\$0.22
Tenakee Springs	\$0.69	\$0.69	\$0.69	\$0.69
Thorne Bay	\$0.24	\$0.24	\$0.24	\$0.24
Whale Pass	\$0.60	\$0.60	\$0.60	\$0.60
Wrangell	\$0.11	\$0.11	\$0.00	\$0.11
Yakutat	\$0.50	\$0.50	\$0.50	\$0.47
Community Average	\$0.37	\$0.38	\$0.37	\$0.37

Source: ISER, 2012

SPACE HEATING

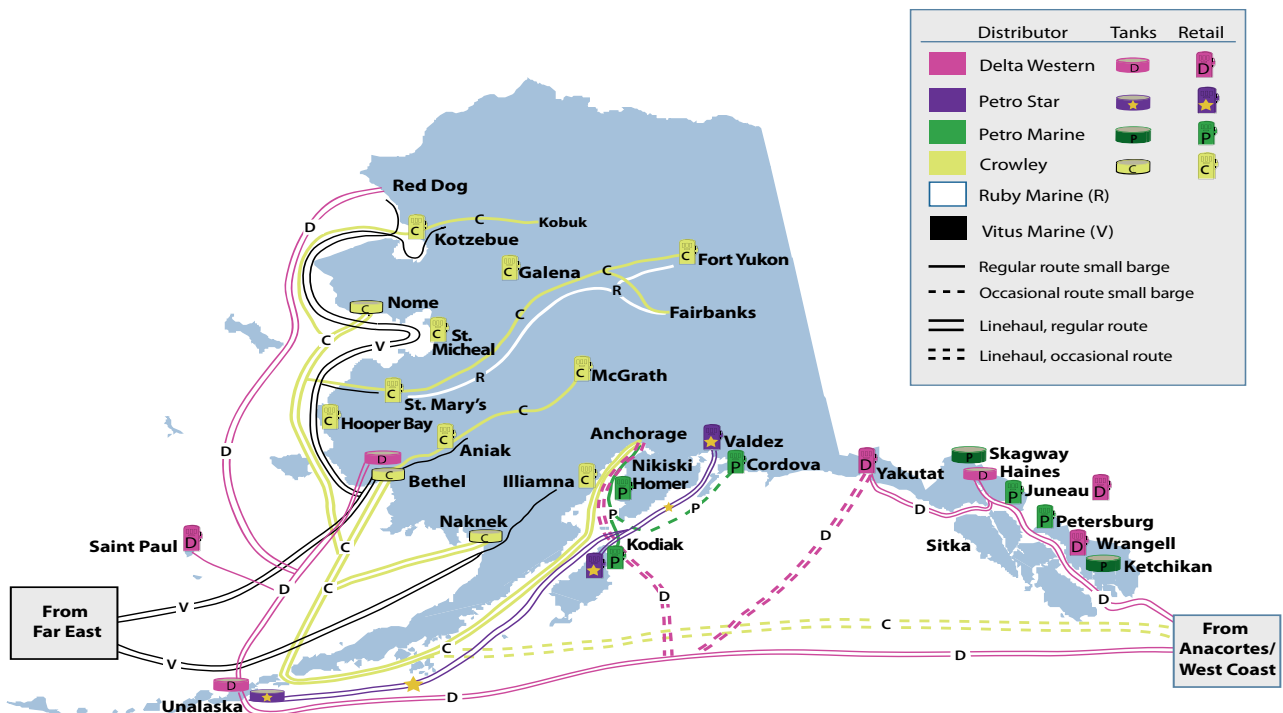
Southeast Alaska space heating is primarily provided from fuel oil with 63 percent of the homes using fuel oil, 21 percent using electric heating from hydropower, four percent using electric heating from diesel generators, and 11 percent using wood fuel. This report does not cover any natural gas or propane use in the region. However, a Black and Veatch study in 2012 stated that approximately four percent of space heating in Southeast Alaska was obtained from natural gas or propane (Source: Black and Veatch, 2012).

Figure 3: Southeast Alaska Space Heating Demand by Fuel Type



Detailed heating oil price projections are available in section 5.3 of the Southeast Alaska Integrated Resource Plan (Source: Black and Veatch, 2012).

Figure 4: Fuel Distribution Routes in Rural Alaska Markets



Source: ISER, 2010

Table 6: Community Average Annual Heating Fuel Prices Per Gallon

Community	2005	2006	2007	2008	2009	2010	2011	2012
Angeon	\$ 3.30	\$ 3.58	\$ 3.79	\$ 5.22	\$ 3.56	\$ 4.26	\$ 4.85	\$ 5.26
Craig	\$ 3.10	\$ 3.00	\$ 3.34	\$ 4.29	\$ 2.70	\$ 3.16	\$ 4.05	\$ 4.23
Gustavus	\$ 2.80	\$ 3.08	\$ 3.43	\$ 4.99	\$ 2.79	\$ 3.47	\$ 4.32	\$ 4.98
Hoonah	\$ 3.41	\$ 3.28	\$ 3.79	\$ 4.99	\$ 3.42	\$ 3.79	\$ 4.84	\$ 4.60
Juneau	\$ 2.94	\$ 3.07	\$ 3.38	\$ 4.55	\$ 3.01	\$ 3.08	\$ 4.07	\$ 4.18
Kake	\$ 3.38	\$ 3.78	\$ 4.02	\$ 5.62	\$ 3.51	\$ 4.22	\$ 5.31	\$ 5.68
Pelican	\$ 3.47	\$ 3.55	\$ 3.98	\$ 6.09	\$ 3.89	\$ 4.55	\$ 5.57	\$ 5.10
Petersburg	\$ 2.96	\$ 2.93	\$ 3.37	\$ 4.32	\$ 2.62	\$ 3.14	\$ 4.08	\$ 4.08
Point Baker	\$ 4.10	\$ 4.10	\$ 4.08	\$ 7.70	\$ 8.40	\$ 3.78	\$ 4.13	\$ 5.20
Thorne Bay	\$ 3.48	\$ 3.99	\$ 4.25	\$ 5.80	\$ 5.48	\$ 4.76	\$ 5.26	\$ 5.77
Wrangell	\$ 2.85	\$ 2.95	\$ 3.25	\$ 4.27	\$ 2.70	\$ 3.16	\$ 4.07	\$ 4.28
Alaska	\$ 3.28	\$ 3.07	\$ 3.64	\$ 5.05	\$ 3.21	\$ 3.41	\$ 4.50	\$ 4.56

Source: DCCED, 2012

TRANSPORTATION FUELS

Southeast Alaska transportation fuel use consists of higher than average marine and aviation fuel use and below average fuel use for road transportation in comparison to national averages. Southeast Alaska transportation is primarily fueled by gasoline and diesel for vehicles with 49 percent of transportation fuel use, followed by aviation and jet fuel with 23 percent, marine fuel (taxed) with 15 percent, and AMHS marine fuel with 12 percent.

Aside from the AMHS vessel data by port, the transportation fuels section of this report were approximated based on Alaska Department of Revenue data and scaled by populations for each community in Southeast Alaska. This is a particularly crude approximation and should be improved as time and budget allow.

Total fuel use from each ferry was allocated to the local population during the off-season for tourists. This was accomplished by taking the total fuel use of vessels that travel in Southeast Alaska and then dividing this by the percent of passengers on that vessel that exit in a given Southeast Alaska community. During the tourist season months, a resident-to-visitor ratio was also applied to help allocate a given community's energy demand; the ratio was obtained from McDowell Group's Alaska Visitor Statistics Program 2011 survey results for the entire state (Source: McDowell Group, 2013).

Figure 5: Southeast Alaska Transportation Fuel Demand by Fuel Type

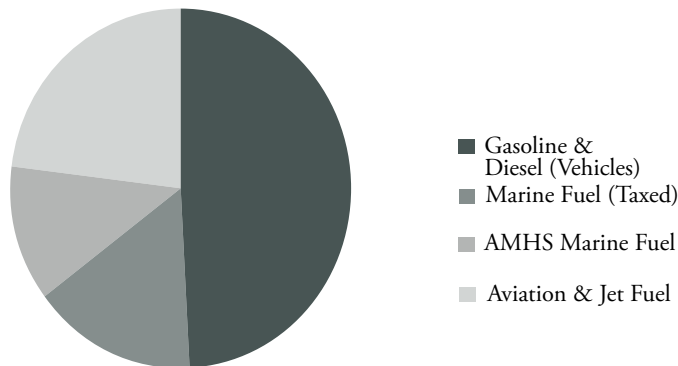


Table 8: Community Average Annual Gasoline Prices Per Gallon

Community	2005	2006	2007	2008	2009	2010	2011	2012
Angoon	\$ 3.20	\$ 3.70	\$ 3.98	\$ 5.03	\$ 3.36	\$ 4.30	\$ 4.89	\$ 5.09
Craig	\$ 2.76	\$ 3.40	\$ 3.31	\$ 3.87	\$ 2.81	\$ 3.34	\$ 3.88	\$ 4.34
Gustavus	\$ 3.30	\$ 3.27	\$ 3.77	\$ 4.77	\$ 2.82	\$ 3.67	\$ 4.26	\$ 5.03
Hoonah	\$ 3.08	\$ 3.23	\$ 3.79	\$ 4.44	\$ 3.26	\$ 3.70	\$ 4.65	\$ 4.36
Juneau	\$ 2.91	\$ 2.75	\$ 3.30	\$ 3.85	\$ 2.47	\$ 3.11	\$ 3.87	\$ 4.17
Kake	\$ 3.49	\$ 3.84	\$ 4.11	\$ 5.15	\$ 3.48	\$ 4.60	\$ 5.40	\$ 5.99
Pelican	\$ 3.69	\$ 4.20	\$ 4.13	\$ 5.62	\$ 3.93	\$ 4.74	\$ 5.60	\$ 5.01
Petersburg	\$ 3.06	\$ 2.65	\$ 3.26	\$ 3.96	\$ 2.67	\$ 3.38	\$ 3.77	\$ 4.14
Point Baker	\$ 4.15	\$ 4.25	\$ 4.08	\$ 7.70	\$ 8.40	\$ 3.98	\$ 4.53	\$ 4.95
Thorne Bay	\$ 2.99	\$ 3.25	\$ 3.65	\$ 4.29	\$ 3.03	\$ 3.68	\$ 4.25	\$ 4.60
Wrangell	\$ 3.55	\$ 3.02	\$ 3.67	\$ 4.72	\$ 3.33	\$ 3.82	\$ 4.55	\$ 4.28
Alaska	\$ 3.83	\$ 4.34	\$ 4.52	\$ 5.71	\$ 5.44	\$ 5.06	\$ 5.53	\$ 6.02

Source: DCCED, 2012

Table 7: Community Marine Diesel #2 Prices Per Gallon

Community	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Juneau	\$ 0.95	\$ 1.25	\$ 1.28	\$ 1.05	\$ 1.27	\$ 1.56	\$ 2.18	\$ 2.58	\$ 2.70	\$ 3.69	\$ 2.36	\$ 2.82	\$ 3.62	\$ 3.89	\$ 3.82
Ketchikan	\$ 0.87	\$ 1.24	\$ 1.23	\$ 1.09	\$ 1.35	\$ 1.68	\$ 2.23	\$ 2.68	\$ 2.74	\$ 3.82	\$ 2.35	\$ 2.93	\$ 3.74	\$ 3.98	\$ 3.99
Petersburg	\$ 0.94	\$ 1.28	\$ 1.36	\$ 1.11	\$ 1.37	\$ 1.63	\$ 2.27	\$ 2.71	\$ 2.75	\$ 3.90	\$ 2.36	\$ 2.89	\$ 3.68	\$ 3.95	\$ 4.01
Sitka	\$ 0.96	\$ 1.35	\$ 1.37	\$ 1.17	\$ 1.40	\$ 1.69	\$ 2.27	\$ 2.73	\$ 2.76	\$ 3.81	\$ 2.34	\$ 2.72	\$ 3.65	\$ 3.91	\$ 3.80
Wrangell			\$ 1.29	\$ 1.22	\$ 1.41	\$ 1.74	\$ 2.40	\$ 2.88	\$ 3.07	\$ 4.47	\$ 2.99	\$ 3.04	\$ 3.90	\$ 4.12	\$ 4.10
Yakutat			\$ 1.43	\$ 1.45	\$ 1.56	\$ 1.95	\$ 2.63	\$ 3.11	\$ 3.28	\$ 4.46	\$ 3.81	\$ 3.50	\$ 4.36	\$ 5.08	\$ 5.02
Average	\$ 0.93	\$ 1.28	\$ 1.33	\$ 1.18	\$ 1.40	\$ 1.71	\$ 2.33	\$ 2.78	\$ 2.88	\$ 4.02	\$ 2.70	\$ 2.98	\$ 3.82	\$ 4.15	\$ 4.12

Source: Pacific States Marine Fisheries Commission 2013

Haines Borough

HAINES ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

Haines Borough is comprised of Covenant Life, Excursion Inlet, Haines, Lutak, Mosquito Lake, and Mud Bay. Haines is the only community out of the six listed that is included in this report based on the data availability criteria noted in the Introduction. The population of Haines CDP was 1,832 in 2012 and the populations for the other communities were between 12 and 292.

The total local energy demand per household in Haines (630 MMBtu) is 3 percent higher than the average household in Southeast Alaska.

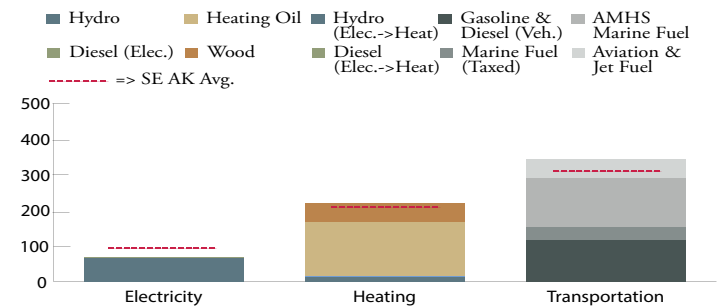
Table 9: Haines Borough Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	59,784	11,308	-	71,092
Diesel (Electricity)	3,458	654	-	4,112
Heating Fuel Oil	-	140,717	-	140,717
Wood	-	47,630	-	47,630
Gasoline & Diesel (Vehicles)	-	-	106,755	106,755
Marine Fuel (Taxed)	-	-	33,552	33,552
AMHS Marine Fuel	-	-	125,814	125,814
Jet Fuel	-	-	49,659	49,659
Aviation Fuel	-	-	150	150
Total	63,241	200,309	315,930	579,480

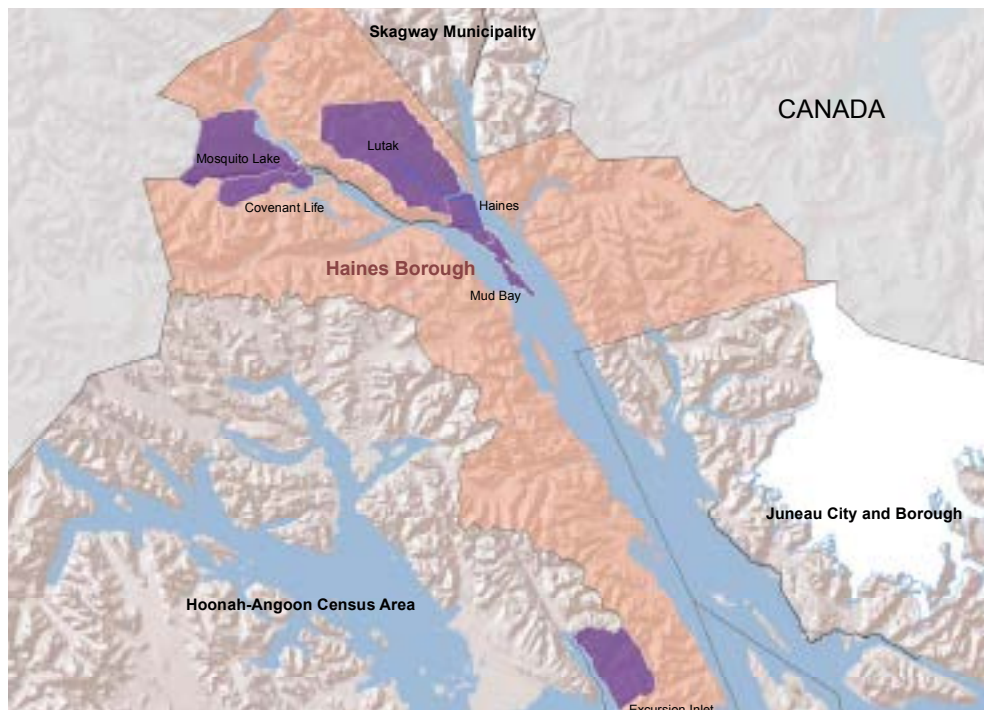
The total local energy demand in Haines is comprised mostly of transportation fuels (315,900 MMBtu, 55 percent of the total), followed by space heating fuels (200,309 MMBtu, 35 percent of the total), and electricity (63,241 MMBtu, 11 percent of the total).

Space heating is provided, in part, by electricity. Table 9 and Figure 6 differentiate between electricity used for space heating and all other types of electricity use.

Figure 6: Haines Borough Energy Demand by Fuel Type (MMBtu per Household)



The figure to the right provides the fuel demand and identifies the portion of electricity that is used for space heating.



Source: United States Census Bureau, 2012

Haines Electricity

Electricity for Haines is supplied by AP&T via Skagway from hydroelectric sources as well as some diesel. Electricity sources include AP&T’s hydroelectric Lutak plant, Southern Energy’s hydroelectric 10 Mile plant, as well as via the intertie transmission line that connects Haines with the electrical grid in Skagway. Additionally, AP&T maintains four diesel generators: Haines 5, Haines 7A, Haines 10, and Haines IC8A. Haines is part of the Upper Lynn Canal Transmission Planning Region that also includes Skagway, Chilkat Valley, and Klukwan.

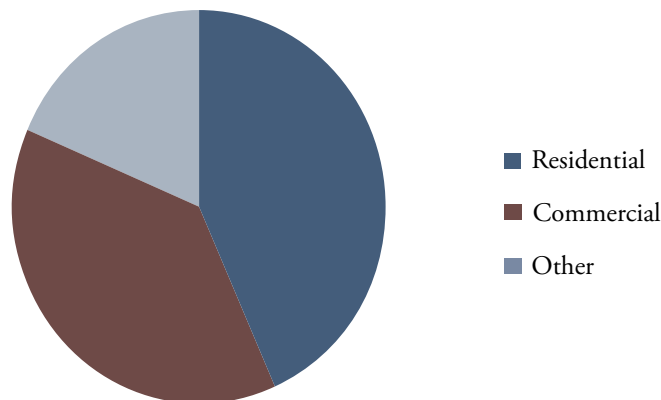
Electricity prices were 14.65 cents per kWh for customers in FY 2010 but would have been 21.89 cents per kWh without the PCE program (Black and Veatch, 2012); the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Haines electricity demand totaled 63,241 MMBtu for 921 households (69 MMBtu per household) and a population of 1,832 (35 MMBtu per capita). The totals for Haines Borough are equal to Haines CDP since the other communities in Haines Borough were excluded due to limited data availability. Electricity demand per household is 28 percent lower than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Haines cost approximately \$33 million for the end-users; paid to AP&T and IPEC.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Haines is the residential sector with an electricity demand of 27,406 MMBtu (30 MMBtu per household) followed by the commercial sector with an electricity demand of 24,224 MMBtu (26 MMBtu per household) and all other activities with an electricity demand of 11,611 MMBtu (13 MMBtu per household).

Figure 7: Haines Electricity Demand By Sector



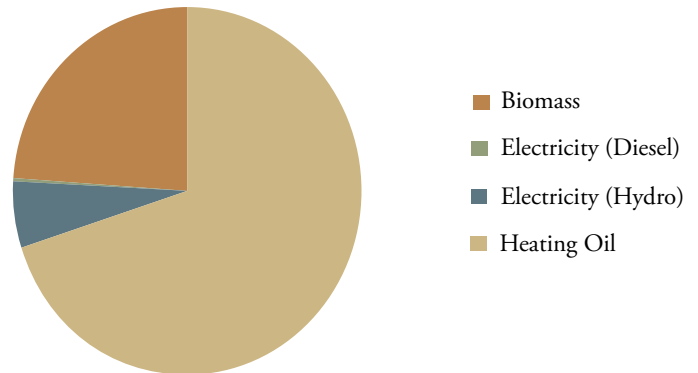
Haines Space Heating

In 2010, heating fuel demand in Haines totaled 140,717 MMBtu (70 percent of space heating), biomass totaled 47,630 MMBtu (24 percent of space heating), and electricity use for heating totaled 11,962 MMBtu (6 percent of space heating).

Space heating demand per household in Haines CDP is the same as the borough’s average and 4 percent higher than the Southeast Alaska regional average. Heating fuel prices were \$4.76/gallon in 2012. Electricity prices were \$15.20/kWh.

Wood energy is consumed using residential stoves and commercial or government boilers. In Haines there were 51 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013). For instance, the Chilkoot Indian Association in Haines has a Pellergy - pellet biomass thermal installation with an installed capacity of 0.37 MMBtu/hr with an estimated annual usage of 570 MMBtu/year in 2010 and was installed in 2010 (AEA, 2011).

Figure 8: Haines Space Heating Demand by Fuel Type



Haines Transportation

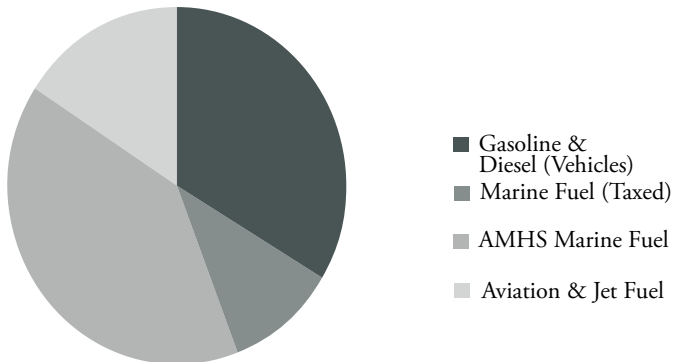
Haines is well connected with various types of transportation options. Haines is a major hub for shipments due to its ice-free, deep water port and dock, and year-round road access to both Canada and Interior Alaska. Freight arrives by trucks, barges, ships, and by plane. Alaska Marine Highway System also visits Haines as a ferry stop and cruise ships visit the port.

There are a borough-owned seaplane base, a state-owned seaplane base, a state-owned runway with daily small aircraft flights to Juneau, two small boat harbors (240 total moorage slips), a AMHS terminal, and a cruise ship dock.

In 2010, Haines CDP gasoline and road diesel demand totaled 106,755 MMBtu, marine diesel totaled 33,552 MMBtu, AMHS marine fuel totaled 125,814 MMBtu, jet fuel totaled 49,659 MMBtu, and aviation diesel totaled 150 MMBtu.

Transportation fuel demand per household is 12 percent higher than the Southeast Alaska regional average.

Figure 9: Haines Transportation Fuel Demand by Fuel Type



Hoonah-Angoon Census Area

Hoonah-Angoon Census Area is comprised of Angoon, Elfin Cove, Game Creek, Gustavus, Hobart Bay, Hoonah, Pelican, Tenakee Springs, and Whitestone Logging Camp. Six of those nine communities are included in this report based on the data availability criteria noted in the Introduction: Angoon, Elfin Cove, Gustavus, Hoonah, Pelican, and Tenakee Springs.

The total local energy demand for these communities, as described in the Introduction, equals 525,745 MMBtu, or 576 MMBtu per household, for a population of 1,976. Using this per capita value the total local energy demand for all communities in the borough (including Game Creek, Hobart Bay, and Whitestone Logging Camp) would equal 588,004 MMBtu.

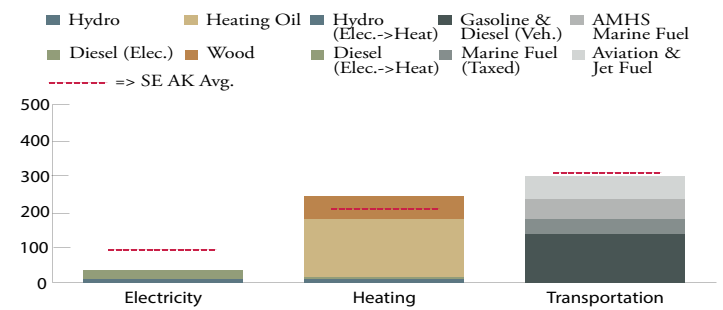
Table 10: Hoonah-Angoon Census Area Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	8,956	9,288	-	18,244
Diesel (Electricity)	23,398	5,654	-	29,052
Heating Fuel Oil	-	147,248	-	147,248
Wood	-	59,187	-	59,187
Gasoline & Diesel (Vehicles)	-	-	124,329	124,329
Marine Fuel (Taxed)	-	-	39,075	39,075
AMHS Marine Fuel	-	-	50,195	50,195
Jet Fuel	-	-	57,834	57,834
Aviation Fuel	-	-	175	175
Total	32,355	221,376	271,609	525,340

Hoonah-Angoon Census Area's total local energy demand per household is 6 percent lower than the average household in Southeast Alaska. Pelican has the lowest total local energy demand per household with 402 MMBtu per household and Tenakee Springs has the highest total local energy demand per household with 741 MMBtu per household.

The total local energy demand in Hoonah-Angoon Census Area is comprised mostly of transportation fuels (271,609 MMBtu) followed by space heating fuels (221,376 MMBtu), and electricity (32,355 MMBtu).

Figure 10: Hoonah-Angoon Census Area Energy Demand by Fuel Type (MMBtu per Household)



Space heating is provided, in part, by electricity. The figure to the right provides the fuel demand and identifies the portion of electricity that is used for space heating.



Source: United States Census Bureau, 2012

ANGOON ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

The total local energy demand per household in Angoon (697 MMBtu per household) is 21 percent higher than the average household in Hoonah-Angoon Census Area and 14 percent higher than the average household in Southeast Alaska.

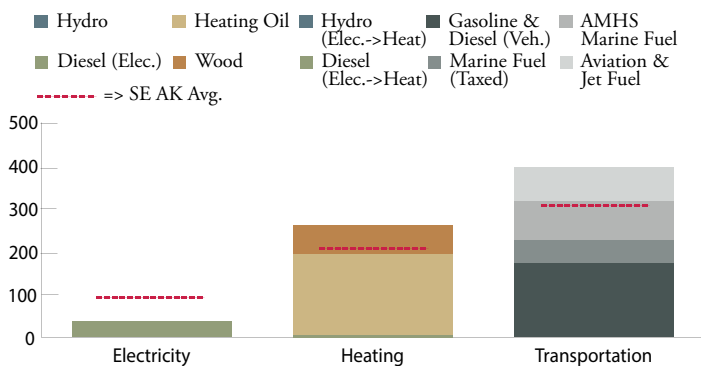
The total local energy demand in Angoon is comprised mostly of transportation fuels (66,122 MMBtu, 57 percent of the total), followed by space heating fuels (43,015 MMBtu, 37 percent of the total), and electricity (6,216 MMBtu, 5 percent of the total).

Table 11: Angoon Energy Demand by Fuel Type

	Electricity	Heating	Transportation	Total
Hydro	-	-	-	-
Diesel (Electricity)	6,216	777	-	6,993
Heating Fuel Oil	-	31,354	-	31,354
Wood	-	10,883	-	10,883
Gasoline & Diesel (Vehicles)	-	-	28,605	28,605
Marine Fuel (Taxed)	-	-	8,990	8,990
AMHS Marine Fuel	-	-	15,180	15,180
Jet Fuel	-	-	13,306	13,306
Aviation Fuel	-	-	40	40
Total	6,216	43,015	66,122	115,353

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

Figure 11: Angoon Energy Demand by Fuel Type (MMBtu per Household)



Angoon Electricity

Electricity for Angoon is supplied by IPEC from diesel generation. Electricity sources include the four diesel generators in Angoon: Angoon Diesel 1, Angoon Diesel 1A, Angoon Diesel 2A, and Angoon Diesel 3. Angoon is part of the Chichagof Island Transmission Planning Region that also includes Hoonah, Pelican, and Tenakee Springs.

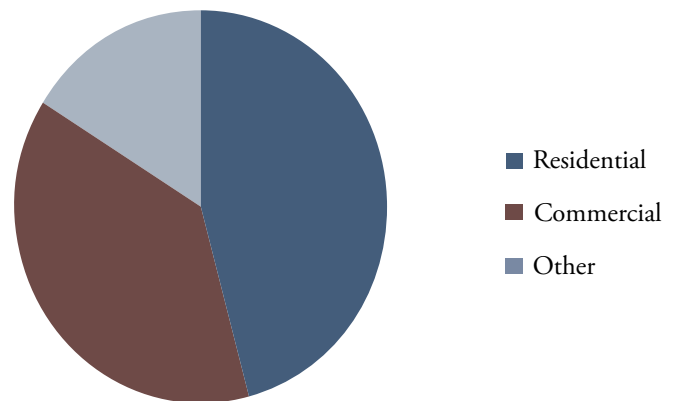
Electricity prices were 19.78 cents/kWh for customers in FY 2010 but would have been 56.08 cents/kWh without the PCE program (Black and Veatch, 2012); the regional average electricity prices were 37 cents per kWh (Black and Veatch, 2012).

Angoon electricity demand totaled 6,216 MMBtu for 166 households (37 MMBtu per household) and a population of 14 (MMBtu per capita). Electricity demand per household is 61 percent lower than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Angoon cost approximately \$5 million for the end-users; paid to IPEC.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Angoon is the residential sector with an electricity demand of 2,850 MMBtu (17 MMBtu per household) followed by the commercial sector with an electricity demand of 2,369 MMBtu (14 MMBtu per household) and all other activities with an electricity demand of 997 MMBtu (6 MMBtu per household).

Figure 12: Angoon Electricity Demand By End-Use



Angoon Space Heating

In 2010, heating fuel demand in Angoon totaled 31,354 MMBtu (73 percent of space heating), biomass totaled 10,883 MMBtu (25 percent of space heating), and electricity use for heating totaled 777 MMBtu (2 percent of space heating).

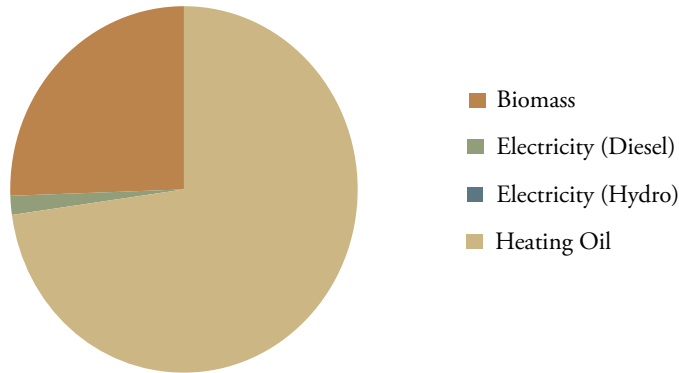
Space heating demand per household in Angoon is 7 percent higher than the borough's average and 25 percent higher than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Angoon there were 6 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Space heating in Angoon is supplied by Angoon Oil and Gas for heating oil, Inside Passage Electric Cooperative for electricity, and Petro Marine for wood.

Heating fuel prices were \$4.26/gallon in 2012. Electricity prices were \$22.54/kWh in 2010.

Figure 13: Angoon Space Heating Demand by Fuel Type

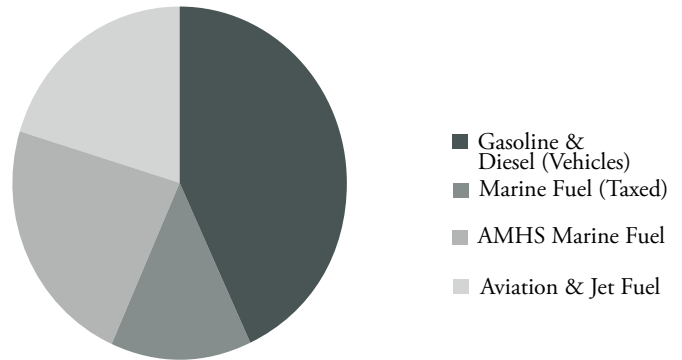


Angoon Transportation

Transportation fuels in Angoon are distributed by Petro Marine. In 2010, Angoon gasoline and road diesel demand totaled 28,605 MMBtu, marine diesel totaled 8,990 MMBtu, AMHS marine fuel totaled 15,180 MMBtu, jet fuel totaled 13,306 MMBtu, and aviation diesel totaled 40 MMBtu.

Transportation fuel demand per household is 34 percent higher than the Hoonah-Angoon Census Area average and 30 percent higher than the Southeast Alaska regional average.

Figure 14: Angoon Transportation Fuel Demand by Fuel Type



ELFIN COVE ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

The total local energy demand per household in Elfin Cove (533 MMBtu per household) is 13 percent lower than the average household in Hoonah-Angoon Census Area and 7 percent lower than the average household in Southeast Alaska.

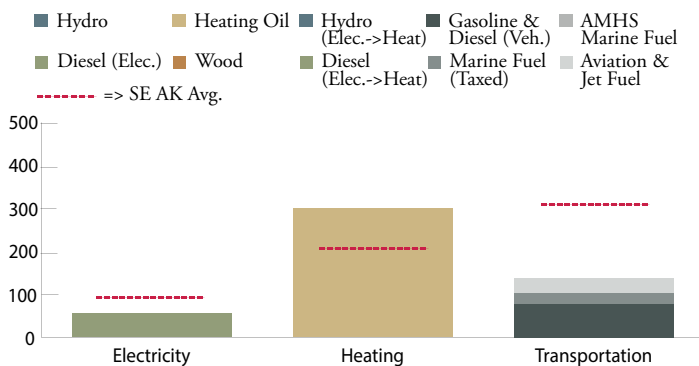
The total local energy demand in Elfin Cove is comprised mostly of space heating fuels (4,792 MMBtu, 61 percent of the total), followed by transportation fuels (2,220 MMBtu, 28 percent of the total), and electricity (885 MMBtu, 11 percent of the total).

Table 12: Elfin Cove Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	-	-	-	-
Diesel (Electricity)	885	-	-	885
Heating Fuel Oil	-	4,792	-	4,792
Wood	-	-	-	-
Gasoline & Diesel (Vehicles)	-	-	1,246	1,246
Marine Fuel (Taxed)	-	-	392	392
AMHS Marine Fuel	-	-	-	-
Jet Fuel	-	-	580	580
Aviation Fuel	-	-	2	2
Total	885	4,792	2,220	7,897

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

Figure 15: Elfin Cove Energy Demand by Fuel Type (MMBtu per Household)



Elfin Cove Electricity

Electricity for Elfin Cove is supplied by the Elfin Cove Utility Commission from diesel generation. Electricity sources include three diesel generators owned by the Elfin Cove Utility Commission. Elfin Cove is part of the Chichagof Island Transmission Planning Region that also includes Hoonah, Pelican, and Tenakee Springs.

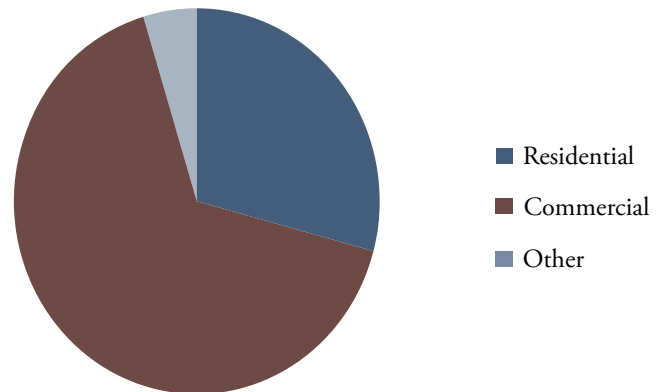
Electricity prices were 19.84 cents per kWh for customers in FY 2010 but would have been 52.30 cents per kWh without the PCE program (Black and Veatch, 2012); the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Elfin Cove electricity demand totaled 885 MMBtu for 16 households (55 MMBtu per household) and a population of 20 (44 MMBtu per capita). Electricity demand per household is 42 percent lower than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Elfin Cove cost approximately \$1 million for the end-users; paid to Elfin Cove Utility Commission.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Elfin Cove is the commercial sector with an electricity demand of 585 MMBtu (37 MMBtu per household) followed by the residential sector with an electricity demand of 259 MMBtu (16 MMBtu per household) and all other activities with an electricity demand of 41 MMBtu (3 MMBtu per household).

Figure 16: Elfin Cove Electricity Demand By End-Use



Elfin Cove Space Heating

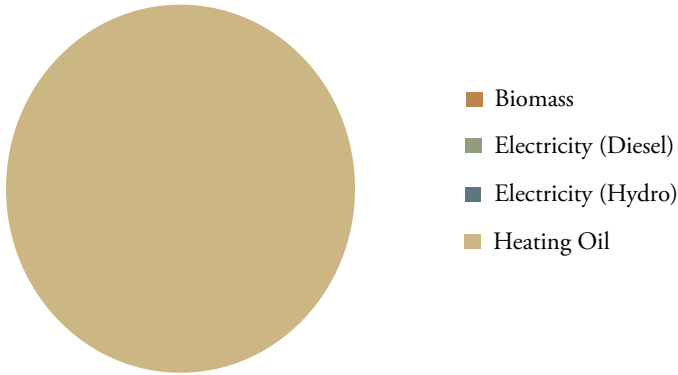
In 2010, heating fuel demand in Elfin Cove totaled 4792 MMBtu (100 percent of space heating), electricity use for heating totaled 0 MMBtu (0 percent of space heating), and biomass totaled 0 MMBtu (0 percent of space heating).

Space heating demand per household in Elfin Cove is 23 percent higher than the borough's average and 44 percent higher than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Elfin Cove there were 0 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Heating fuel prices were \$5.37/gallon in 2012. Electricity prices were \$36.02/kWh in 2010.

Figure 17: Elfin Cove Space Heating Demand by Fuel Type

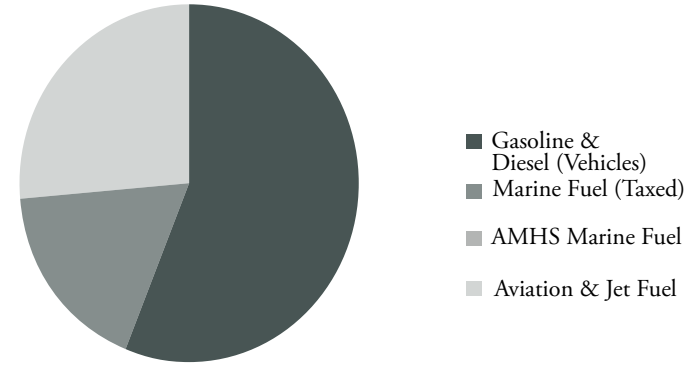


Elfin Cove Transportation

In 2010, Elfin Cove gasoline and road diesel demand totaled 1,246 MMBtu, marine diesel totaled 392 MMBtu, AMHS marine fuel totaled 0 MMBtu, jet fuel totaled 580 MMBtu, and aviation diesel totaled 2 MMBtu.

Transportation fuel demand per household is 53 percent less than the Hoonah-Angoon Census Area average and 55 percent less than the Southeast Alaska regional average.

Figure 18: Elfin Cove Transportation Fuel Demand by Fuel Type



GUSTAVUS ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

The total local energy demand per household in Gustavus (518 MMBtu per household) is 15 percent lower than the average household in Hoonah-Angoon Census Area and 10 percent lower than the average household in Southeast Alaska.

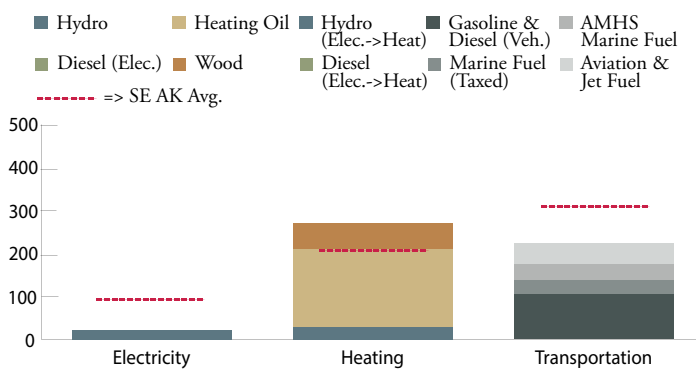
The total local energy demand in Gustavus is comprised mostly of space heating fuels (71,893 MMBtu, 53 percent of the total), followed by transportation fuels (59,295 MMBtu, 43 percent of the total), and electricity (5,706 MMBtu, 4 percent of the total).

Table 13: Gustavus Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	5,641	7,509	-	13,150
Diesel (Electricity)	65	87	-	152
Heating Fuel Oil	-	48,291	-	48,291
Wood	-	16,006	-	16,006
Gasoline & Diesel (Vehicles)	-	-	27,546	27,546
Marine Fuel (Taxed)	-	-	8,657	8,657
AMHS Marine Fuel	-	-	10,240	10,240
Jet Fuel	-	-	12,813	12,813
Aviation Fuel	-	-	39	39
Total	5,706	71,893	59,295	136,895

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

Figure 19: Gustavus Energy Demand by Fuel Type (MMBtu per Household)



Gustavus Electricity

Electricity for Gustavus is supplied by the Gustavus Electric Company from hydroelectric sources as well as some diesel. Electricity sources include the Falls Creek hydroelectric plant. Additionally, Gustavus Electric Company maintains a diesel generator. Gustavus is part of the Northern Transmission Planning Region that also includes Yakutat.

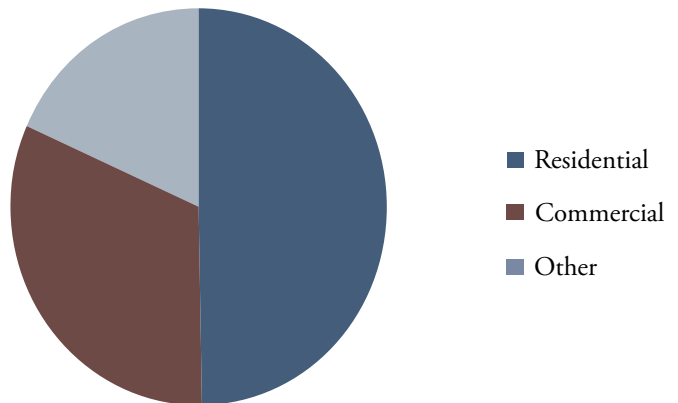
Electricity prices were 25.49 cents/kWh for customers in FY 2010 but would have been 39.15 cents/kWh without the PCE program (Black and Veatch, 2012); the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Gustavus electricity demand totaled 5,706 MMBtu for 265 households (22 MMBtu per household) and a population of 442 (13 MMBtu per capita). Electricity demand per household is 78 percent lower than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Gustavus cost approximately \$5 million for the end-users; paid to Gustavus Electric Company.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Gustavus is the residential sector with an electricity demand of 2,851 MMBtu (11 MMBtu per household) followed by the commercial sector with an electricity demand of 1,818 MMBtu (7 MMBtu per household) and all other activities with an electricity demand of 1,038 MMBtu (4 MMBtu per household).

Figure 20: Gustavus Electricity Demand By End-Use



Gustavus Space Heating

In 2010, heating fuel demand in Gustavus totaled 48,291 MMBtu (67 percent of space heating), biomass totaled 16,006 MMBtu (22 percent of space heating), and electricity use for heating totaled 7,596 MMBtu (11 percent of space heating).

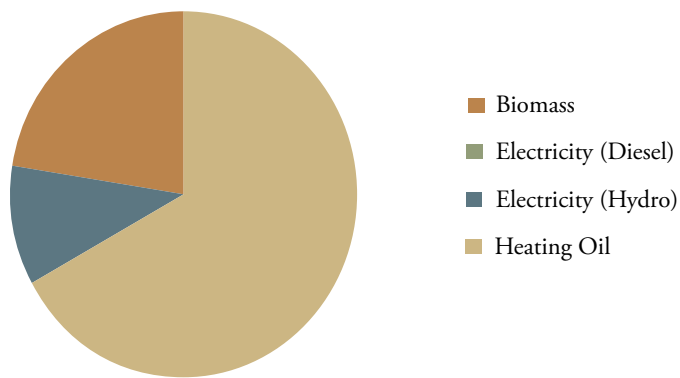
Space heating demand per household in Gustavus is 12 percent higher than the borough's average and 30 percent higher than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Gustavus there were 10 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Space heating in Gustavus is supplied by Gustavus Dray for heating oil and Gustavus Electric Company for electricity.

Heating fuel prices were \$3.465/gallon in 2012. Electricity prices were \$27.4/kWh in 2010.

Figure 21: Gustavus Space Heating Demand by Fuel Type

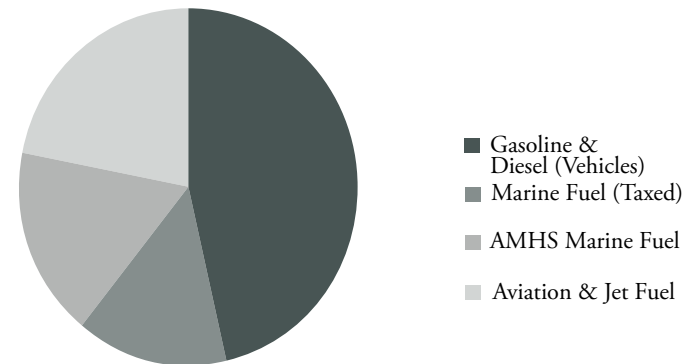


Gustavus Transportation

In 2010, Gustavus gasoline and road diesel demand totaled 27,546 MMBtu, jet fuel totaled 12,813 MMBtu, AMHS marine fuel totaled 10,240 MMBtu, marine diesel totaled 8,657 MMBtu, and aviation diesel totaled 39 MMBtu.

Transportation fuel demand per household is 25 percent lower than the Hoonah-Angoon Census Area average and 27 percent lower than the Southeast Alaska regional average.

Figure 22: Gustavus Transportation Fuel Demand by Fuel Type



HOONAH ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

The total local energy demand per household in Hoonah (586 MMBtu per household) is 4 percent lower than the average household in Hoonah-Angoon Census Area and 2 percent higher than the average household in Southeast Alaska.

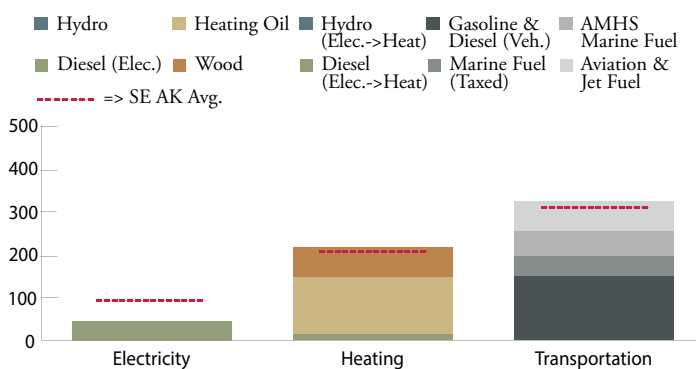
The total local energy demand in Hoonah is comprised mostly of transportation fuels (103,182 MMBtu, 55 percent of the total), followed by space heating fuels (69,354 MMBtu, 37 percent of the total), and electricity (14,466 MMBtu, 8 percent of the total).

Table 14: Hoonah Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	-	-	-	-
Diesel (Electricity)	14,466	4,118	-	18,584
Heating Fuel Oil	-	43,130	-	43,130
Wood	-	22,107	-	22,107
Gasoline & Diesel (Vehicles)	-	-	47,364	47,364
Marine Fuel (Taxed)	-	-	14,886	14,886
AMHS Marine Fuel	-	-	18,834	18,834
Jet Fuel	-	-	22,032	22,032
Aviation Fuel	-	-	67	67
Total	14,466	69,354	103,182	187,002

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

Figure 23: Hoonah Energy Demand by Fuel Type (MMBtu per Household)



Hoonah Electricity

Electricity for Hoonah is supplied via intertie by IPEC from diesel generation at the Chilkat Valley Plant. Electricity sources include the three diesel generators and beginning in 2015 will include the Gartina Falls Hydro Plant. Hoonah is part of the Upper Lynn Canal Transmission Planning Region that also includes Elfin Cove, Pelican, and Tenakee Springs.

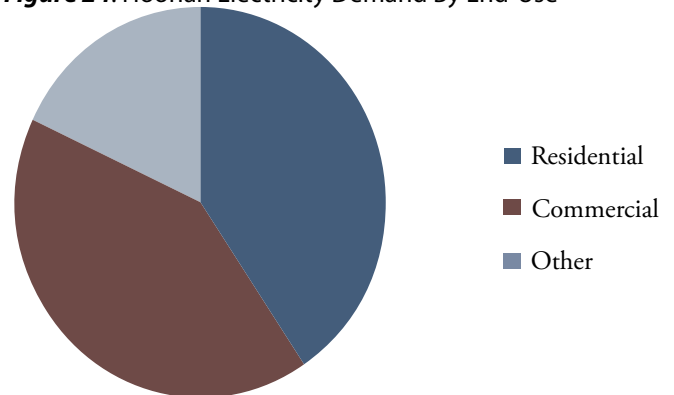
Electricity prices were 19.78 cents per kWh for customers in FY 2010 but would have been 56.08 cents per kWh without the PCE program (Black and Veatch, 2012); the regional average electricity prices were 37 cents per kWh (Black and Veatch, 2012).

Hoonah electricity demand totaled 14,466 MMBtu for 320 households (45 MMBtu per household) and a population of 760 (19 MMBtu per capita). Electricity demand per household is 53 percent lower than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Hoonah cost approximately \$11 million for the end-users; paid to IPEC.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Hoonah is the commercial sector with an electricity demand of 6,017 MMBtu (19 MMBtu per household) followed by the residential sector with an electricity demand of 5,878 MMBtu (18 MMBtu per household) and all other activities with an electricity demand of 2,572 MMBtu (8 MMBtu per household).

Figure 24: Hoonah Electricity Demand By End-Use



Hoonah Space Heating

In 2010, heating fuel demand in Hoonah totaled 43,130 MMBtu (62 percent of space heating), biomass totaled 22,107 MMBtu (32 percent of space heating), and electricity use for heating totaled 4,118 MMBtu (6 percent of space heating).

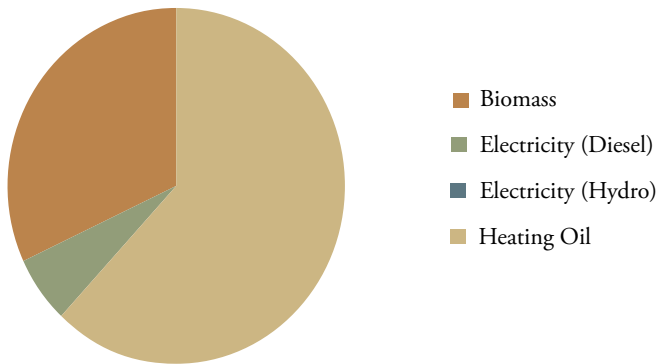
Space heating demand per household in Hoonah is 11 percent lower than Hoonah-Angoon Census Area’s average and 4 percent higher than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Hoonah there were 22 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Space heating in Hoonah is supplied by Hoonah Trading for heating oil and Inside Passage Electric Cooperative for electricity.

Heating fuel prices were \$3.79/gallon in 2012. Electricity prices were \$22.12/kWh in 2010.

Figure 25: Hoonah Space Heating Demand by Fuel Type

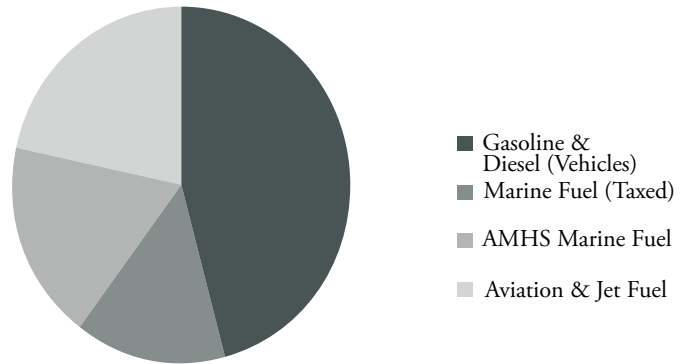


Hoonah Transportation

In 2010, Hoonah gasoline and road diesel demand totaled 47,364 MMBtu, jet fuel totaled 22,032 MMBtu, AMHS marine fuel totaled 18,834 MMBtu, marine diesel totaled 14,886 MMBtu, and aviation diesel totaled 67 MMBtu.

Transportation fuel demand per household is 8 percent higher than the Hoonah-Angoon Census Area average and 5 percent higher than the Southeast Alaska regional average.

Figure 26: Hoonah Transportation Fuel Demand by Fuel Type



KLUKWAN ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

The total local energy demand per household in Klukwan (496 MMBtu per household) is 14 percent lower than the average household in Hoonah-Angoon Census Area and 19 percent lower than the average household in Southeast Alaska.

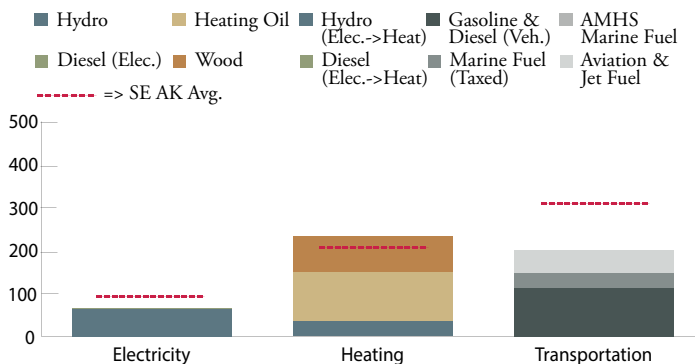
The total local energy demand in Klukwan is comprised mostly of space heating fuels (12,274 MMBtu, 47 percent of the total), followed by transportation fuels (10,544 MMBtu, 40 percent of the total), and electricity (3,454 MMBtu, 13 percent of the total).

Table 15: Klukwan Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	3,315	1,778	-	5,094
Diesel (Electricity)	139	74	-	213
Heating Fuel Oil	-	6,021	-	6,021
Wood	-	4,400	-	4,400
Gasoline & Diesel (Vehicles)	-	-	5,920	5,920
Marine Fuel (Taxed)	-	-	1,861	1,861
AMHS Marine Fuel	-	-	-	-
Jet Fuel	-	-	2,754	2,754
Aviation Fuel	-	-	8	8
Total	3,454	12,274	10,544	26,271

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

Figure 27: Klukwan Energy Demand by Fuel Type (MMBtu per Household)



Klukwan Electricity

Electricity for Klukwan is supplied via intertie by IPEC from diesel generation at the Chilkat Valley Plant. Electricity sources include the hydroelectric purchases from Southern Energy and AP&T. Additionally, IPEC maintains a diesel generator that serves as a backup. Klukwan is part of the Upper Lynn Canal Transmission Planning Region that also includes Haines, Chilkat Valley, and Skagway.

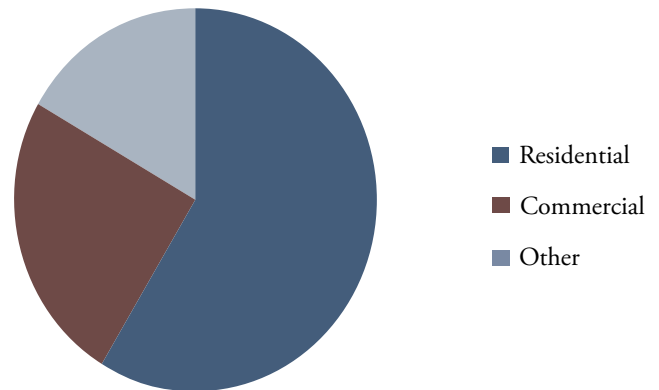
Electricity prices were 19.78 cents/kWh for customers in FY 2010 but would have been 56.08 cents/kWh without the PCE program (Black and Veatch, 2012); the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Klukwan electricity demand totaled 3,454 MMBtu for 53 households (65 MMBtu per household) and a population of 95 (36 MMBtu per capita). Electricity demand per household is 32 percent lower than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Klukwan cost approximately \$3 million for the end-users; paid to IPEC, Southern Energy, and AP&T.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Klukwan is the residential sector with an electricity demand of 2,034 MMBtu (38 MMBtu per household) followed by the commercial sector with an electricity demand of 846 MMBtu (16 MMBtu per household) and all other activities with an electricity demand of 574 MMBtu (11 MMBtu per household).

Figure 28: Klukwan Electricity Demand By End-Use



Klukwan Space Heating

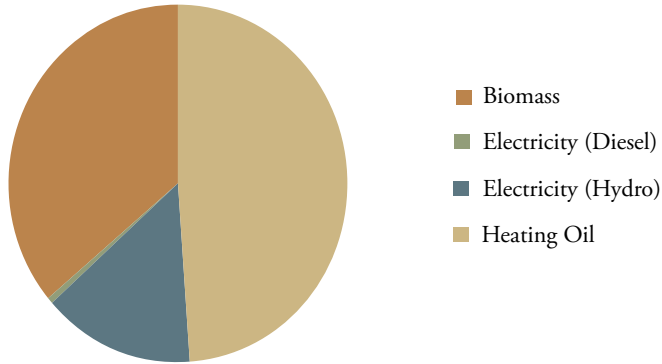
In 2010, heating fuel demand in Klukwan totaled 6,021 MMBtu (49 percent of space heating), biomass totaled 4,400 MMBtu (36 percent of space heating), and electricity use for heating totaled 1,853 MMBtu (15 percent of space heating).

Space heating demand per household in Klukwan is 5 percent lower than Hoonah-Angoon Census Area's average and 12 percent higher than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Klukwan there were 2 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Heating fuel prices were \$4.75/gallon in 2012. Electricity prices were \$22.35/kWh in 2010.

Figure 29: Klukwan Space Heating Demand by Fuel Type

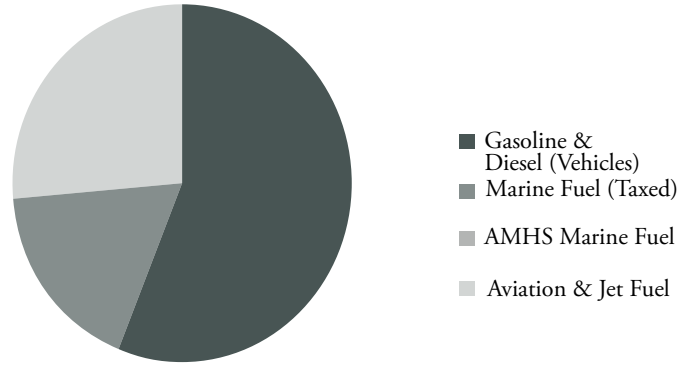


Klukwan Transportation

In 2010, Klukwan gasoline and road diesel demand totaled 5,920 MMBtu, jet fuel totaled 2,754 MMBtu, marine diesel totaled 1,861 MMBtu, aviation diesel totaled 8 MMBtu, and AMHS marine fuel totaled 0 MMBtu.

Transportation fuel demand per household is 33 percent lower than the Hoonah-Angoon Census Area average and 35 percent lower than the Southeast Alaska regional average.

Figure 30: Klukwan Transportation Fuel Demand by Fuel Type



PELICAN ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

The total local energy demand per household in Pelican (397 MMBtu per household) is 31 percent lower than the average household in Hoonah-Angoon Census Area and 35 percent lower than the average household in Southeast Alaska.

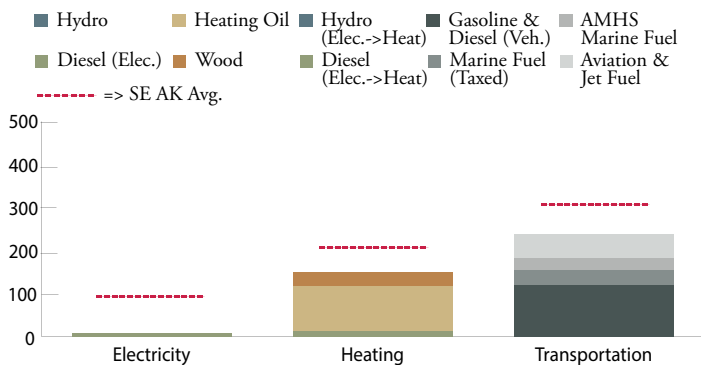
The total local energy demand in Pelican is comprised mostly of transportation fuels (10,978 MMBtu, 60 percent of the total), followed by transportation fuels (6,868 MMBtu, 38 percent of the total), and electricity (423 MMBtu, 2 percent of the total).

Table 16: Pelican Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	-	-	-	-
Diesel (Electricity)	423	597	-	1,021
Heating Fuel Oil	-	4,777	-	4,777
Wood	-	1,493	-	1,493
Gasoline & Diesel (Vehicles)	-	-	5,484	5,484
Marine Fuel (Taxed)	-	-	1,724	1,724
AMHS Marine Fuel	-	-	1,212	1,212
Jet Fuel	-	-	2,551	2,551
Aviation Fuel	-	-	8	8
Total	423	6,868	10,978	18,269

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

Figure 31: Pelican Energy Demand by Fuel Type (MMBtu per Household)



Pelican Electricity

Electricity for Pelican is supplied by Pelican Utility Company from hydroelectric sources as well as some diesel. Electricity sources include the Pelican hydro plant and five diesel units (Centennial Power, Plant-IC6, Pelican IC6, Pelican IC7, and Pelican IC8). Pelican is part of the Chichagof Island Transmission Planning Region that also includes Elfin Cove, Hoonah, and Tenakee Springs.

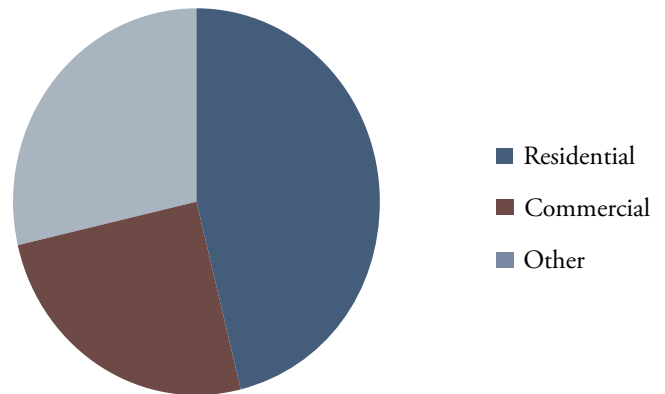
Electricity prices were 31.51 cents/kWh for customers in FY 2010 but would have been 64.00 cents/kWh without the PCE program (Black and Veatch, 2012); the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Pelican electricity demand totaled 423 MMBtu for 46 households (9 MMBtu per household) and a population of 88 (5 MMBtu per capita). Electricity demand per household is 90 percent lower than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Pelican cost approximately \$1 million for the end-users; paid to Pelican Utility Company.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Pelican is the residential sector with an electricity demand of 196 MMBtu (4 MMBtu per household) followed by the commercial sector with an electricity demand of 107 MMBtu (2 MMBtu per household) and all other activities with an electricity demand of 120 MMBtu (3 MMBtu per household).

Figure 32: Pelican Electricity Demand By End-Use



Pelican Space Heating

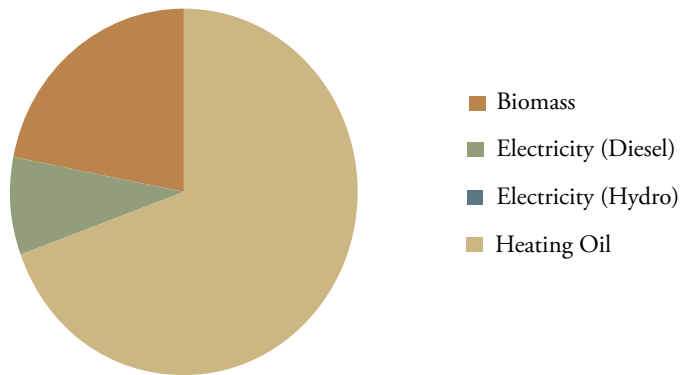
In 2010, heating fuel demand in Pelican totaled 4,777 MMBtu (70 percent of space heating), biomass totaled 1,493 MMBtu (22 percent of space heating), and electricity use for heating totaled 597 MMBtu (9 percent of space heating).

Space heating demand per household in Pelican is 39 percent lower than Hoonah-Angoon Census Area's average and 28 percent lower than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Pelican there were 5 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Heating fuel prices were \$4.55/gallon in 2012.

Figure 33: Pelican Space Heating Demand by Fuel Type

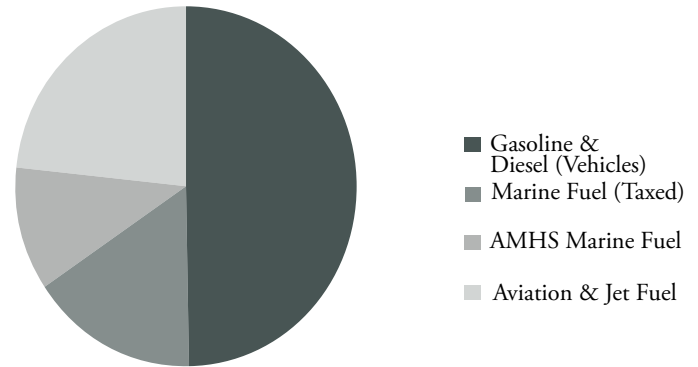


Pelican Transportation

In 2010, Pelican gasoline and road diesel demand totaled 5484 MMBtu, jet fuel totaled 2,551 MMBtu, marine diesel totaled 1,724 MMBtu, AMHS marine fuel totaled 1,212 MMBtu, and aviation diesel totaled 8 MMBtu.

Transportation fuel demand per household is 20 percent lower than the Hoonah-Angoon Census Area average and 22 percent lower than the Southeast Alaska regional average.

Figure 34: Pelican Transportation Fuel Demand by Fuel Type



TENAKEE SPRINGS ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

The total local energy demand per household in Tenakee Springs (732 MMBtu) is 27 percent higher than the average household in Hoonah-Angoon Census Area and 20 percent higher than the average household in Southeast Alaska.

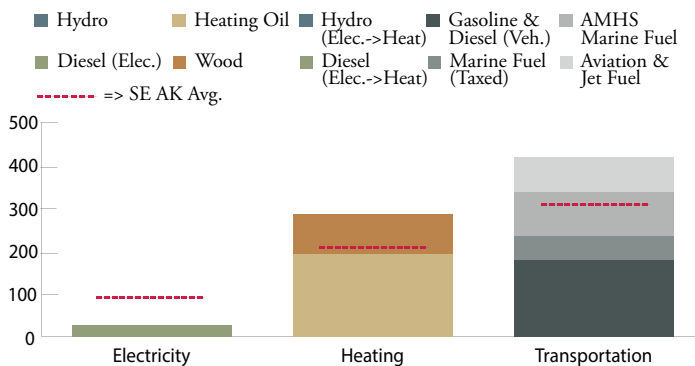
The total local energy demand in Tenakee Springs is comprised mostly of transportation fuels (19,269 MMBtu, 57 percent of the total), followed by space heating fuels (13,180 MMBtu, 39 percent of the total), and electricity (1,204 MMBtu, 4 percent of the total).

Table 17: Tenakee Springs Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	-	-	-	-
Diesel (Electricity)	1,204	-	-	1,204
Heating Fuel Oil	-	8,882	-	8,882
Wood	-	4,298	-	4,298
Gasoline & Diesel (Vehicles)	-	-	8,164	8,164
Marine Fuel (Taxed)	-	-	2,566	2,566
AMHS Marine Fuel	-	-	4,730	4,730
Jet Fuel	-	-	3,798	3,798
Aviation Fuel	-	-	12	12
Total	1,204	13,180	19,269	33,653

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

Figure 35: Tenakee Springs Energy Demand by Fuel Type (MMBtu per Household)



Tenakee Springs Electricity

Electricity for Tenakee Springs is supplied by the municipality from two diesel generators: Tenakee 1 and Tenakee 2. Tenakee Springs is part of the Chichagof Island Transmission Planning Region that also includes Elfin Cove, Hoonah, and Pelican.

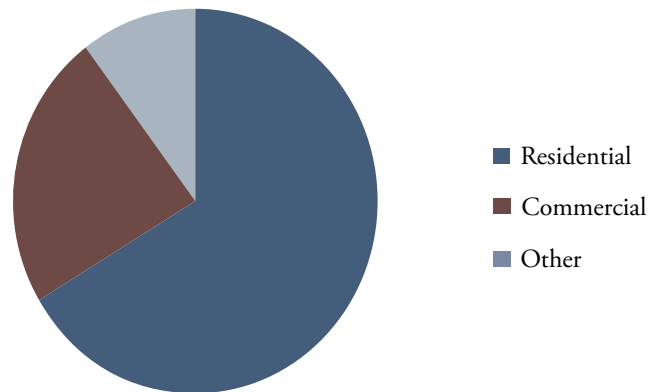
Electricity prices were 31.51 cents per kWh for customers in FY 2010 but would have been 64.00 cents per kWh without the PCE program; the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Tenakee Springs electricity demand totaled 1,204 MMBtu for 46 households (26 MMBtu per household) and a population of 131 (9 MMBtu per capita). Electricity demand per household is 73 percent lower than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Tenakee Springs cost approximately \$1 million for the end-users; paid to the municipality.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Tenakee Springs is the residential sector with an electricity demand of 801 MMBtu (17 MMBtu per household) followed by the commercial sector with an electricity demand of 279 MMBtu (6 MMBtu per household) and all other activities with an electricity demand of 123 MMBtu (3 MMBtu per household).

Figure 36: Tenakee Springs Electricity Demand By End-Use



Tenakee Springs Space Heating

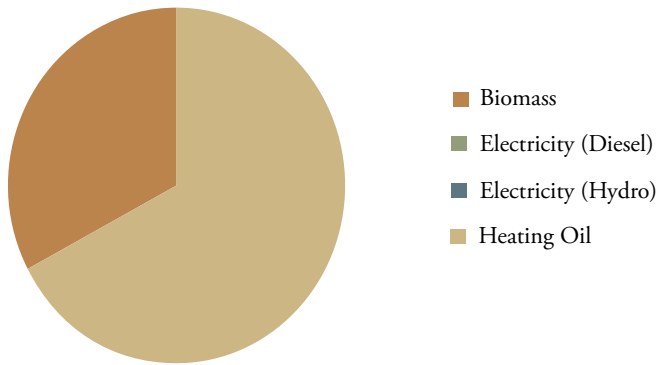
In 2010, heating fuel demand in Tenakee Springs totaled 8882 MMBtu (67 percent of space heating), biomass totaled 4298 MMBtu (33 percent of space heating), and electricity use for heating totaled 0 MMBtu (0 percent of space heating).

Space heating demand per household in Tenakee Springs is 18 percent higher than Hoonah-Angoon Census Area’s average and 38 percent higher than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Tenakee Springs there were 2 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Heating fuel prices were \$5.32/gallon in 2012. Electricity prices were \$31.28/kWh in 2010.

Figure 37: Tenakee Springs Space Heating Demand by Fuel Type

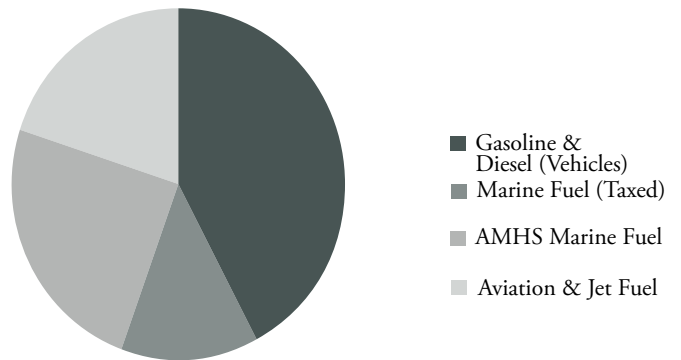


Tenakee Springs Transportation

In 2010, Tenakee Springs gasoline and road diesel demand totaled 8,164 MMBtu, AMHS marine fuel totaled 4,730 MMBtu, jet fuel totaled 3,798 MMBtu, marine diesel totaled 2,566 MMBtu, and aviation diesel totaled 12 MMBtu.

Transportation fuel demand per household is 41 percent higher than the Hoonah-Angoon Census Area average and 36 percent higher than the Southeast Alaska regional average.

Figure 38: Tenakee Springs Transportation Fuel Demand by Fuel Type



Juneau City and Borough

JUNEAU ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

The Borough of Juneau is a unified municipality and there are no other cities included in the borough, according to the DOLWD list of 42 communities in Southeast Alaska. The total local energy demand for Juneau is 6,922,976 MMBtu or 559 MMBtu per household for a population of 32,832.

The total local energy demand per household in the City and Borough of Juneau (559 MMBtu) is 8 percent lower than the average household in Southeast Alaska.

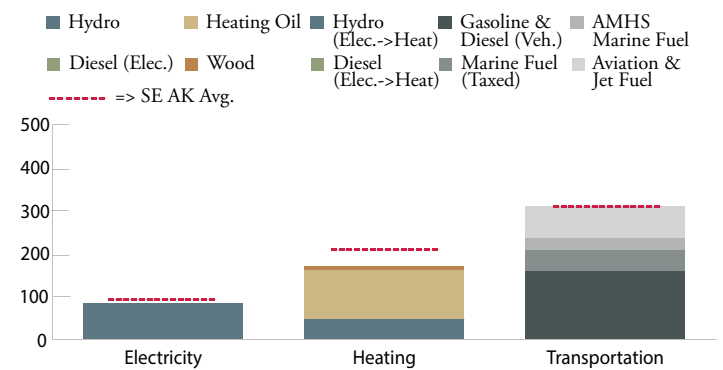
Table 18: Juneau Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	1,018,731	565,468	-	1,584,198
Diesel (Electricity)	1,513	840	-	2,352
Heating Fuel Oil	-	1,418,370	-	1,418,370
Wood	-	93,685	-	93,685
Gasoline & Diesel (Vehicles)	-	-	1,949,072	1,949,072
Marine Fuel (Taxed)	-	-	612,566	612,566
AMHS Marine Fuel	-	-	353,336	353,336
Jet Fuel	-	-	906,651	906,651
Aviation Fuel	-	-	2,746	2,746
Total	1,020,243	2,078,363	3,824,370	6,922,976

The total local energy demand in the City and Borough of Juneau is comprised mostly of transportation fuels (3,824,370 MMBtu, 55 percent of the total), followed by space heating fuels (2,078,363 MMBtu, 30 percent of the total), and electricity (1,020,243 MMBtu, 15 percent of the total).

Fuel distributors in Juneau include the following: Delta Western, Petro Marine, Taku Oil, Amerigas (propane), and Arrowhead (propane).

Figure 39: Juneau Energy Demand by Fuel Type (MMBtu per Household)



Space heating is provided, in part, by electricity. The figure to the right provides the fuel demand and identifies the portion of electricity that is used for space heating.



Source: United States Census Bureau, 2012

Juneau Electricity

Electricity for Juneau is supplied by AEL&P from hydroelectric sources as well as some back-up (peak/standby)diesel generators - used when reservoir levels are low or during maintenance or emergency outages of the hydro plants. Electricity sources include the hydro (Gold Creek, Annex Creek, Salmon Creek, Snettisham, and Lake Dorothy. Additionally, AEL&P maintains three diesel generator units in Auke Bay, five diesel generator units at Gold Creek, and 11 diesel generator units at Lemon Creek. Juneau is part of the Juneau Area Transmission Planning Region that also includes Douglas, Auke Bay, and Greens Creek.

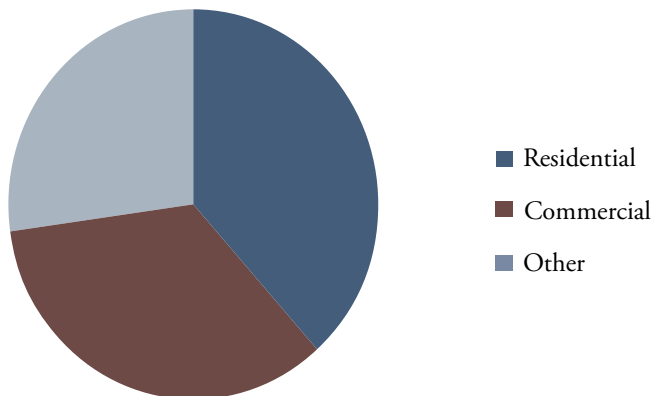
Electricity prices were 12.00 cents/kWh for customers in FY 2010 (Black and Veatch, 2012); the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Juneau electricity demand totaled 1,020,243 MMBtu for 12,379 households (82 MMBtu per household) and a population of 31,275 (33 MMBtu per capita). Electricity demand per household is 14 percent lower than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Elfin Cove cost approximately \$3 million for the end-users; paid to Elfin Cove Utility Commission.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Elfin Cove is the commercial sector with an electricity demand of 585 MMBtu (37 MMBtu per household) followed by the residential sector with an electricity demand of 259 MMBtu (16 MMBtu per household) and all other activities with an electricity demand of 41 MMBtu (3 MMBtu per household).

Figure 40: Juneau Electricity Demand by End-Use



Juneau Space Heating

In 2010, heating fuel demand in Juneau totaled 1,418,370 MMBtu (68 percent of space heating), electricity use for heating totaled 566,307 MMBtu (27 percent of space heating), and biomass totaled 93,685 MMBtu (5 percent of space heating).

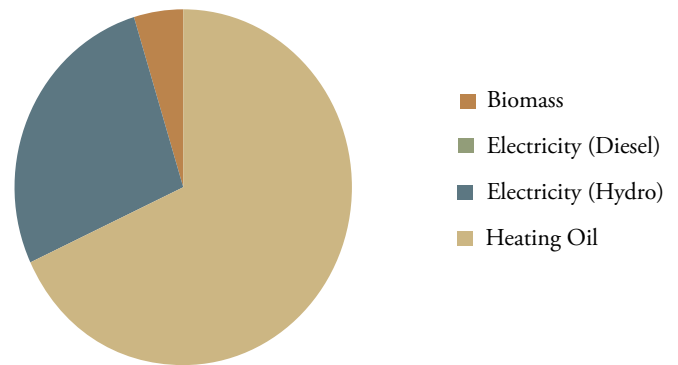
Space heating demand per household in Juneau is 19 percent lower than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Juneau there were 555 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Space heating in Juneau is supplied by Petro Marine, Delta Western, and Taku Oil for heating oil and Alaska Electric Light and Power Company for electricity.

Heating fuel prices were \$3.08/gallon in 2012. Electricity prices were \$12.10/kWh in 2010.

Figure 41: Juneau Space Heating Demand by Fuel Type



Juneau Transportation

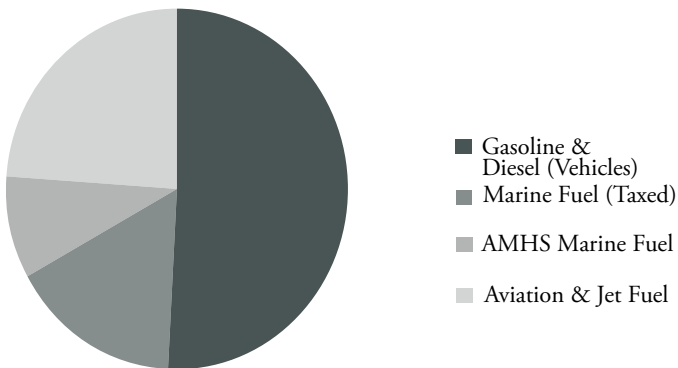
Juneau serves as a regional transportation hub for all communities in Southeast Alaska; including AMHS ferry service that is operated by the Inter-Island Ferry Authority. The Juneau International Airport is owned by the City and Borough of Juneau (Source: Alaska Department of Transportation, 2013).

Transportation fuels in Juneau are distributed by Petro Marine and Delta Western.

In 2010, Juneau gasoline and road diesel demand totaled 1,949,072 MMBtu, jet fuel totaled 906,651 MMBtu, marine diesel totaled 612,566 MMBtu, AMHS marine fuel totaled 353,336 MMBtu, and aviation diesel totaled 2,746 MMBtu.

Transportation fuel demand per household is 1 percent higher than the Southeast Alaska regional average.

Figure 42: Juneau Transportation Fuel Demand by Fuel Type



Ketchikan Gateway Borough

KETCHIKAN ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

Ketchikan Gateway Borough is comprised of Ketchikan, Loring, and Saxman. Ketchikan and Saxman are included in this report based on the data availability criteria noted in the Introduction. The population of Ketchikan and Saxman was 8,723 in 2012 and the population for Loring was three.

The total local energy demand per household in Ketchikan Gateway Borough (611 MMBtu) is 6 percent higher than the average household in Southeast Alaska.

Table 19: Ketchikan Borough Energy Demand by Fuel Type (MMBtu)

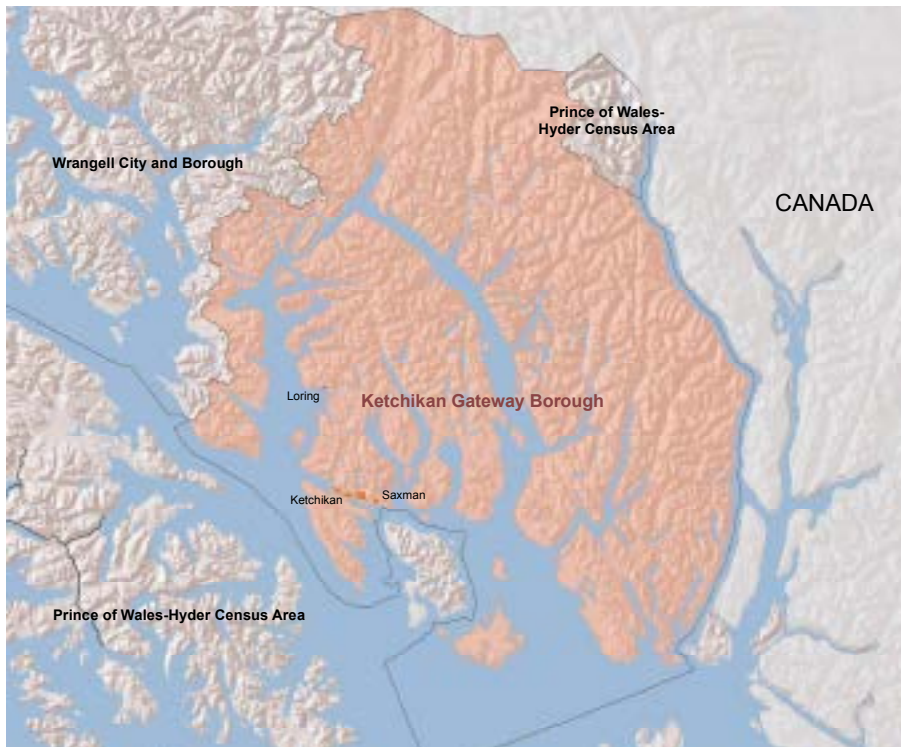
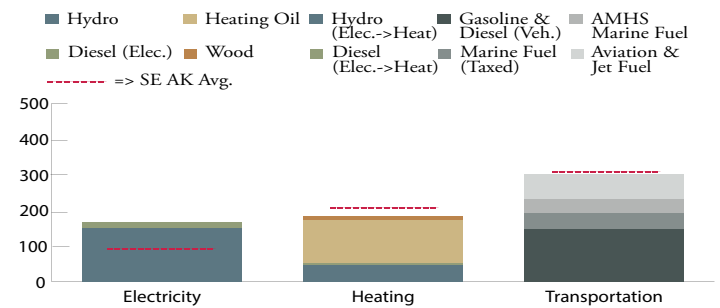
	Electricity	Heating	Transportation	Total
Hydro	537,380	164,903	-	702,283
Diesel (Electricity)	56,200	16,332	-	72,532
Heating Fuel Oil	-	441,022	-	441,022
Wood	-	31,470	-	31,470
Gasoline & Diesel (Vehicles)	-	-	527,293	527,293
Marine Fuel (Taxed)	-	-	165,721	165,721
AMHS Marine Fuel	-	-	140,764	140,764
Jet Fuel	-	-	245,281	245,281
Aviation Fuel	-	-	743	743
Total	593,579	653,728	1,079,803	2,327,110

Space heating is provided, in part, by electricity. The figure to the right provides the fuel demand and identifies the portion of electricity that is used for space heating.

Ketchikan Gateway Borough's total local energy demand per household is 6 percent higher than the average household in Southeast Alaska. Saxman has the lowest total local energy demand per household with 469 MMBtu per household and the City of Ketchikan has the highest total local energy demand per household with 656 MMBtu per household.

The total local energy demand in Ketchikan Gateway Borough is comprised mostly of transportation fuels (1,079,803 MMBtu, 46 percent of the total), followed by space heating (653,728 MMBtu, 28 percent of the total), and electricity (593,579 MMBtu, 26 percent of the total).

Figure 43: Ketchikan Gateway Borough Energy Demand by Fuel Type (MMBtu per Household)



Source: United States Census Bureau, 2012

Ketchikan Electricity

Electricity for Ketchikan is supplied by Ketchikan Public Utilities from hydroelectric sources as well as back-up (peak/standby) diesel generators - used when reservoir levels are low or during maintenance or emergency outages of the hydro plants. Electricity sources include the Ketchikan Lakes Hydro Project, Beaver Falls Hydro Project, and Swan Lake Hydro Project as well as via the Swan-Tyee Intertie transmission line that connects Ketchikan with the electrical grid in Wrangell and Petersburg. Additionally Ketchikan Public Utilities maintains four diesel generators at Bailey Powerhouse and two diesel generators at North Point Higgins Substation. Ketchikan is part of the SEAPA Transmission Planning Region that also includes Saxman, Metlakatla, Wrangell, Petersburg, and Kake.

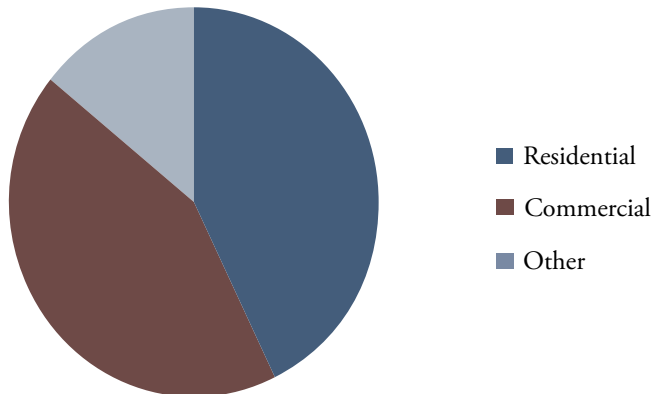
Electricity prices were 9.58 cents/kWh for customers in FY 2010; the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

The City of Ketchikan’s electricity demand totaled 590,602 MMBtu for 3,444 households (171 MMBtu per household) and a population of 8,050 (73 MMBtu per capita). Electricity demand per household is 79 percent higher than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in the City of Ketchikan cost approximately \$206 million for the end-users; paid to Ketchikan Public Utilities.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in the City of Ketchikan is the residential sector with an electricity demand of 253,916 MMBtu (74 MMBtu per household) followed by the commercial sector with an electricity demand of 253,349 MMBtu (74 MMBtu per household) and all other activities with an electricity demand of 83,337 MMBtu (24 MMBtu per household).

Figure 45: Ketchikan Electricity Demand by End-Use



Ketchikan Space Heating

In 2010, heating fuel demand in Ketchikan totaled 424,172 MMBtu (67 percent of space heating), electricity use for heating totaled 181,236 MMBtu (29 percent of space heating), and biomass totaled 28,917 MMBtu (5 percent of space heating).

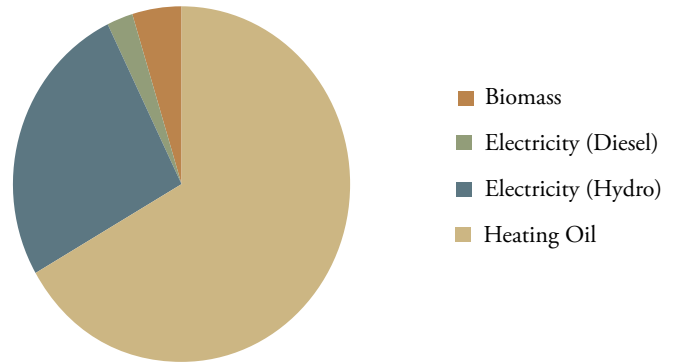
Space heating demand per household in Ketchikan is 1 percent higher than Ketchikan Gateway Borough’s average and 12 percent lower than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Ketchikan there were 224 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Space heating in Ketchikan is supplied by Kake Tribal Fuel for heating oil and the City of Ketchikan for electricity.

Heating fuel prices were \$4.70/gallon in 2012. Electricity prices were \$10.20/kWh in 2010.

Figure 46: Ketchikan Space Heating Demand by Fuel Type



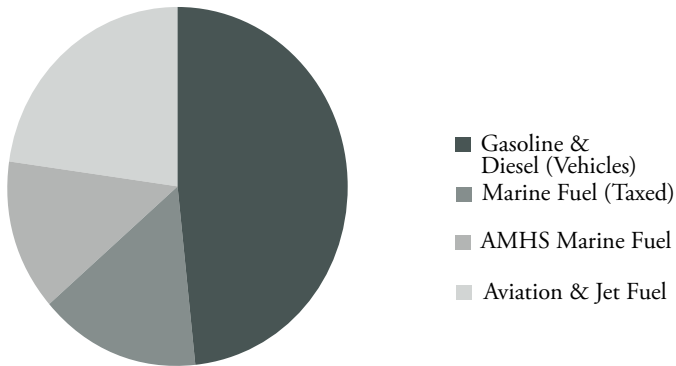
Ketchikan Transportation

Petro Marine stores fuel in Ketchikan - in its 10.4 million gallon fuel storage tank - that is then delivered to smaller surrounding communities in Southeast Alaska. Ketchikan has a marine harbor and it is the first port of call for AMHS vessels and cruise ships. Additionally, Ketchikan serves as a regional transportation hub for smaller communities in southern Southeast Alaska; including the once-daily, year-round ferry service between Ketchikan and Hollis that is operated by the Inter-Island Ferry Authority. The Ketchikan International Airport is owned by Ketchikan Gateway Borough and there are four float plane landing facilities - Tongass Narrows, Peninsula Point, Ketchikan Harbor, and Murphy's (Source: Alaska Department of Transportation, 2013).

In 2010, Ketchikan gasoline and road diesel demand totaled 501,680 MMBtu, jet fuel totaled 233,367 MMBtu, marine diesel totaled 157,671 MMBtu, AMHS marine fuel totaled 140,764 MMBtu, and aviation diesel totaled 707 MMBtu.

Transportation fuel demand per household is 2 percent less than the Southeast Alaska regional average.

Figure 47: Ketchikan Transportation Fuel Demand by Fuel Type



SAXMAN ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

The total local energy demand per household in Saxman (469 MMBtu) is 28 percent lower than the average household in Ketchikan Gateway Borough and 23 percent lower than the average household in Southeast Alaska.

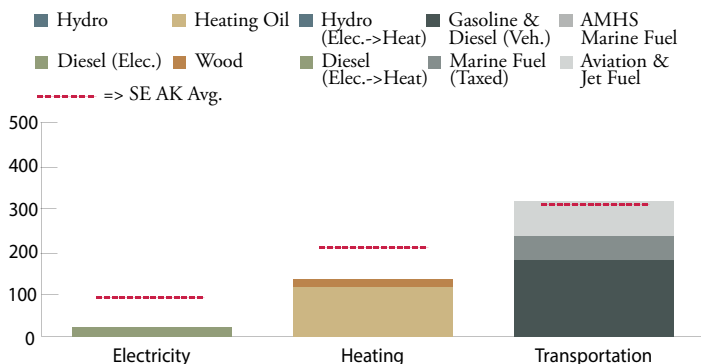
The total local energy demand in Saxman is comprised mostly of transportation fuels (45,615 MMBtu, 67 percent of the total), followed by space heating fuels (19,403 MMBtu, 29 percent of the total), and electricity (2,977 MMBtu, 4 percent of the total).

Table 21: Saxman Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	-	-	-	-
Diesel (Electricity)	2,977	-	-	2,977
Heating Fuel Oil	-	16,850	-	16,850
Wood	-	2,553	-	2,553
Gasoline & Diesel (Vehicles)	-	-	25,614	25,614
Marine Fuel (Taxed)	-	-	8,050	8,050
AMHS Marine Fuel	-	-	-	-
Jet Fuel	-	-	11,915	11,915
Aviation Fuel	-	-	36	36
Total	2,977	19,403	45,615	67,995

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

Figure 48: Saxman Energy Demand by Fuel Type (MMBtu per Household)



Saxman Electricity

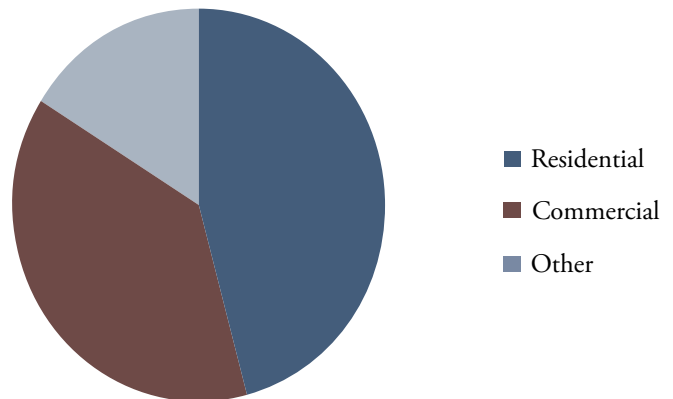
Saxman is part of the SEAPA Transmission Planning Region that also includes Metlakatla, Wrangell, Petersburg, and Kake.

Electricity prices were 10 cents/kWh for customers in FY 2010; the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Saxman's electricity demand totaled 2,977 MMBtu for 145 households (21 MMBtu per household) and a population of 411 (9 MMBtu per capita). Electricity demand per household is 78 percent less than the Southeast Alaska average of 96 MMBtu per household.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Saxman is the residential sector with an electricity demand of 1,365 MMBtu (9 MMBtu per household) followed by the commercial sector with an electricity demand of 1,135 MMBtu (8 MMBtu per household) and all other activities with an electricity demand of 478 MMBtu (3 MMBtu per household).

Figure 49: Saxman Electricity Demand by End-Use



Saxman Space Heating

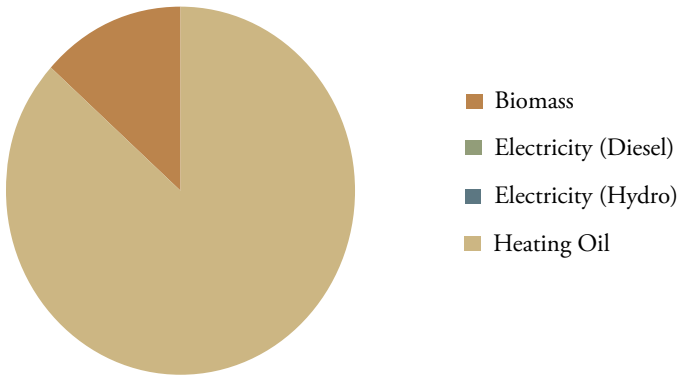
In 2010, heating fuel demand in Saxman totaled 16,850 MMBtu (87 percent of space heating), biomass totaled 2553 MMBtu (13 percent of space heating), and electricity use for heating totaled 0 MMBtu (0 percent of space heating).

Space heating demand per household in Saxman is 26 percent lower than Ketchikan Gateway Borough’s average and 36 percent lower than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Saxman there were 0 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Heating fuel prices were \$4.70/gallon in 2012.

Figure 50: Saxman Space Heating Demand by Fuel Type

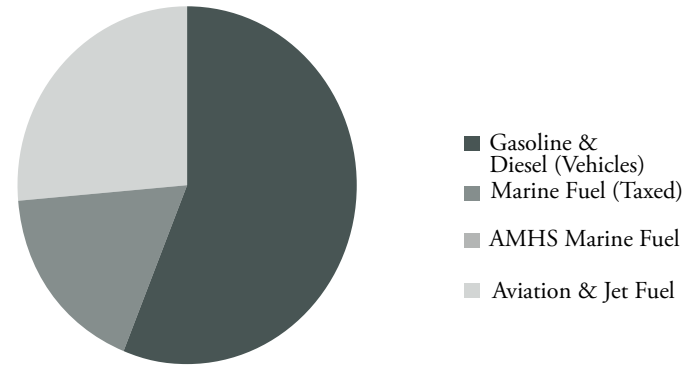


Saxman Transportation

In 2010, Saxman gasoline and road diesel demand totaled 25,614 MMBtu, marine diesel totaled 8,050 MMBtu, jet fuel totaled 11,915 MMBtu, aviation diesel totaled 36 MMBtu and AMHS marine fuel totaled 0 MMBtu, .

Transportation fuel demand per household is 5 percent higher than the Ketchikan Gateway Borough average and 3 percent higher than the Southeast Alaska regional average.

Figure 51: Saxman Transportation Fuel Demand by Fuel Type



Petersburg Borough

Petersburg Borough is comprised of Kake, Kupreanof, Petersburg, and Port Alexander. Kake and Petersburg are included in this report based on the data availability criteria noted in the Introduction.

The total local energy demand per household in Petersburg Borough (793 MMBtu) is 30 percent more than the average household in Southeast Alaska.

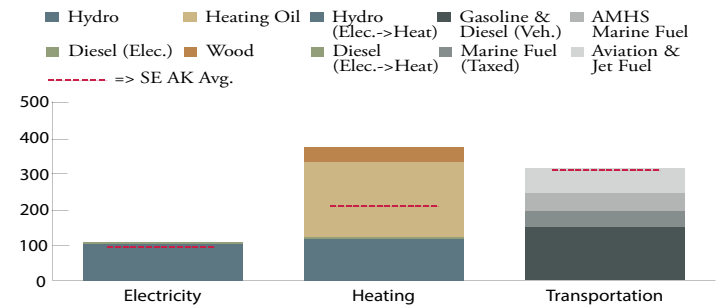
Table 22: Petersburg Borough Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	149,248	171,493	-	320,740
Diesel (Electricity)	7,518	7,099	-	14,617
Heating Fuel Oil	-	310,116	-	310,116
Wood	-	61,654	-	61,654
Gasoline & Diesel (Vehicles)	-	-	218,433	218,433
Marine Fuel (Taxed)	-	-	68,650	68,650
AMHS Marine Fuel	-	-	74,659	74,659
Jet Fuel	-	-	101,609	101,609
Aviation Fuel	-	-	308	308
Total	156,766	550,362	463,659	1,170,786

The City of Petersburg has the highest total local energy demand per household (797 MMBtu) and Kake has the lowest total local energy demand per household (759 MMBtu).

The total local energy demand per household in Petersburg Borough is comprised mostly of space heating (372 MMBtu, 47 percent) followed by transportation (314 MMBtu, 40 percent), and electricity (106 MMBtu, 13 percent).

Figure 52: Petersburg Borough Energy Demand by Fuel Type (MMBtu per Household)



Space heating is provided, in part, by electricity. The figure to the right provides the fuel demand and identifies the portion of electricity that is used for space heating.



Source: United States Census Bureau, 2012

KAKE ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

The total local energy demand per household in Kake (759 MMBtu) is 4 percent less than the average household in Petersburg Census Area and 24 percent more than the average household in Southeast Alaska.

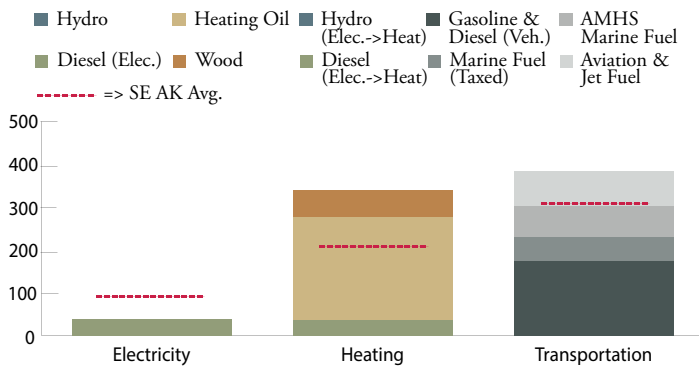
The total local energy demand in Kake is comprised mostly of transportation fuels (76,606 MMBtu, 50 percent of the total), followed by space heating fuels (67,613 MMBtu, 45 percent of the total), and electricity (7,518 MMBtu, 5 percent of the total).

Table 23: Kake Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	-	-	-	-
Diesel (Electricity)	7,518	7,099	-	14,617
Heating Fuel Oil	-	48,343	-	48,343
Wood	-	12,170	-	12,170
Gasoline & Diesel (Vehicles)	-	-	34,712	34,712
Marine Fuel (Taxed)	-	-	10,910	10,910
AMHS Marine Fuel	-	-	14,787	14,787
Jet Fuel	-	-	16,147	16,147
Aviation Fuel	-	-	49	49
Total	7,518	67,613	76,606	151,737

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

Figure 53: Kake Total Primary Energy Demand By Fuel Type (MMBtu per Household)



Kake Electricity

Kake is part of the SEAPA Transmission Planning Region that also includes Petersburg, Wrangell, Ketchikan, Saxman, and Metlakatla.

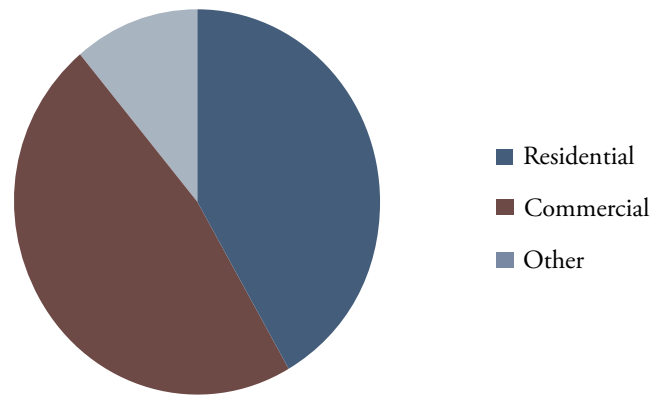
Electricity prices were 21.88 cents/kWh for customers in FY 2010; the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Kake's electricity demand totaled 7,518 MMBtu for 200 households (38 MMBtu per household) and a population of 557 (16 MMBtu per capita). Electricity demand per household is 60 percent less than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Kake cost approximately \$164,495 for the end-users; paid to Inside Passage Electric Cooperative.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Kake is the residential sector with an electricity demand of 3,135 MMBtu (16 MMBtu per household) followed by the commercial sector with an electricity demand of 3,567 MMBtu (18 MMBtu per household) and all other activities with an electricity demand of 816 MMBtu (4 MMBtu per household).

Figure 54: Kake Electricity Demand by End-Use



Kake Space Heating

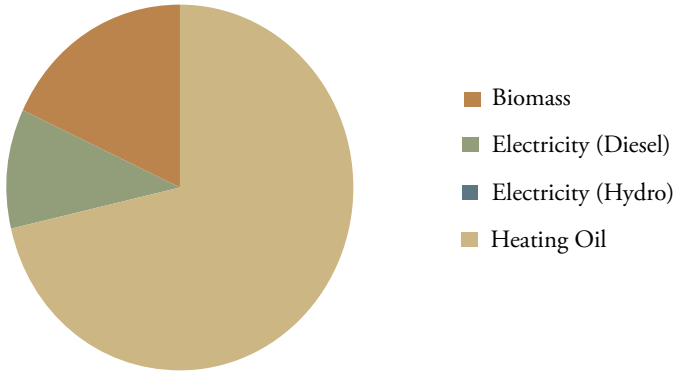
In 2010, heating fuel demand in Kake totaled 48,343 MMBtu (72 percent of space heating), biomass totaled 12,170 MMBtu (18 percent of space heating), and electricity use for heating totaled 7,099 MMBtu (11 percent of space heating).

Space heating demand per household in Kake is 9 percent lower than Petersburg Census Area's average and 63 percent higher than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Kake there were 11 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Heating fuel prices were \$4.22/gallon in 2012. Electricity prices were \$21.88/kWh in 2010.

Figure 55: Kake Space Heating Demand by Fuel Type

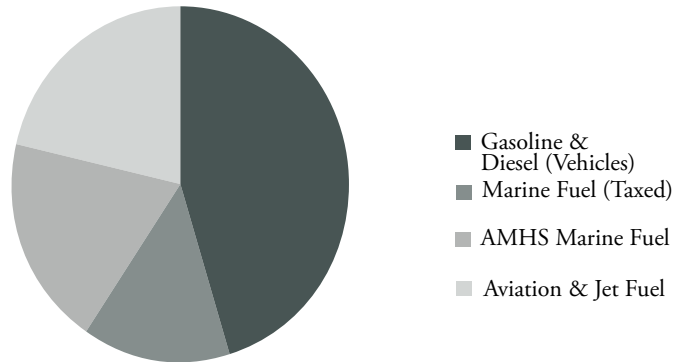


Kake Transportation

In 2010, Kake gasoline and road diesel demand totaled 34,712 MMBtu, jet fuel totaled 16,147 MMBtu, AMHS marine fuel totaled 14,787 MMBtu, marine diesel totaled 10,910 MMBtu, and aviation diesel totaled 49 MMBtu.

Transportation fuel demand per household is 22 percent higher than the Petersburg Census Area average and 25 percent higher than the Southeast Alaska regional average.

Figure 56: Kake Transportation Fuel Demand by Fuel Type



PETERSBURG ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

The total local energy demand per household in Petersburg (797 MMBtu) is 1 percent more than the average household in Petersburg Census Area and 30 percent more than the average household in Southeast Alaska.

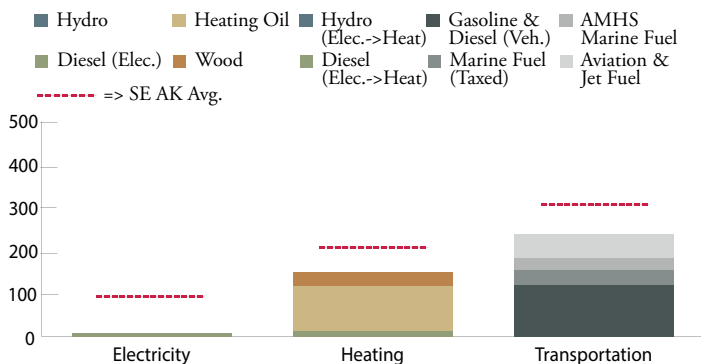
The total local energy demand in Petersburg is comprised mostly of space heating fuels (482,749 MMBtu, 47 percent of the total), followed by transportation fuels (387,053 MMBtu, 38 percent of the total), and electricity (149,248 MMBtu, 15 percent of the total).

Table 24: Petersburg Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	149,248	171,493	-	320,740
Diesel (Electricity)	-	-	-	-
Heating Fuel Oil	-	261,772	-	261,772
Wood	-	49,484	-	49,484
Gasoline & Diesel (Vehicles)	-	-	183,721	183,721
Marine Fuel (Taxed)	-	-	57,741	57,741
AMHS Marine Fuel	-	-	59,872	59,872
Jet Fuel	-	-	85,461	85,461
Aviation Fuel	-	-	259	259
Total	149,248	482,749	387,053	1,019,050

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

Figure 57: Petersburg Energy Demand by Fuel Type (MMBtu per Household)



Petersburg Electricity

Petersburg is part of the SEAPA Transmission Planning Region that also includes Kake, Wrangell, Ketchikan, Saxman, and Metlakatla.

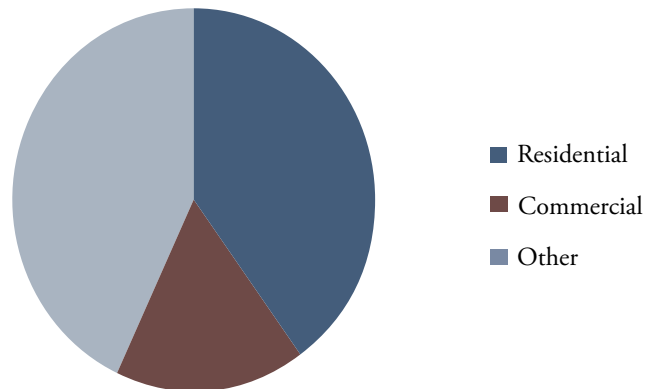
Electricity prices were 9.84 cents/kWh for customers in FY 2010; the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Petersburg's electricity demand totaled 149,248 MMBtu for 1,278 households (117 MMBtu per household) and a population of 2,948 (49 MMBtu per capita). Electricity demand per household is 22 percent more than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Petersburg cost approximately \$1,468,596 for the end-users; paid to Petersburg Municipal Power & Lighting.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in is the all other activities sector with an electricity demand of 63,928 MMBtu (50 MMBtu per household) followed by the residential sector with an electricity demand of 60,050 MMBtu (47 MMBtu per household) and the commercial sector with an electricity demand of 25,270 MMBtu (20 MMBtu per household) and.

Figure 58: Petersburg Electricity Demand by End-Use



Petersburg Space Heating

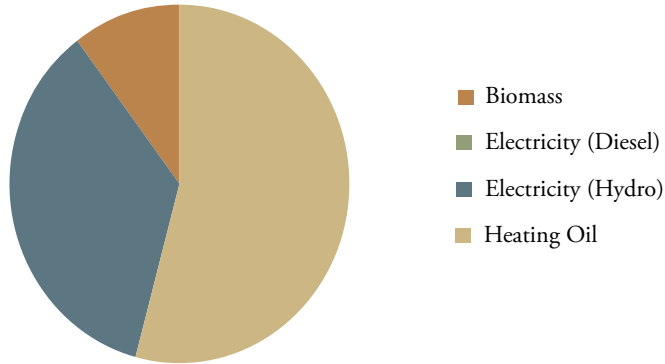
In 2010, heating fuel demand in Petersburg totaled 261,772 MMBtu (54 percent of space heating), electricity use for heating totaled 171,493 MMBtu (36 percent of space heating), and biomass totaled 49,484 MMBtu (10 percent of space heating).

Space heating demand per household in Petersburg is 2 percent higher than Petersburg Census Area's average and 82 percent higher than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Petersburg there were 71 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Heating fuel prices were \$3.14/gallon in 2012. Electricity prices were \$9.84/kWh in 2010.

Figure 59: Petersburg Space Heating Demand by Fuel Type

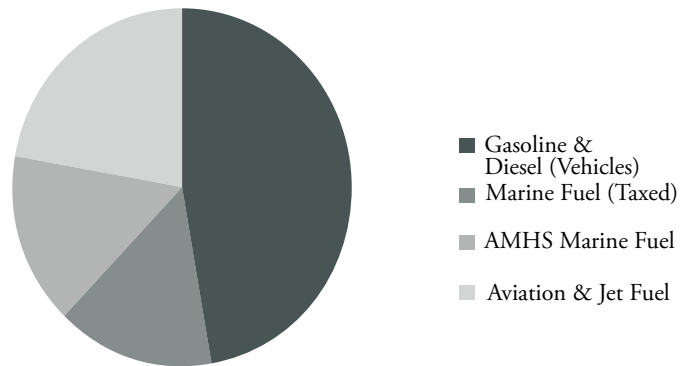


Petersburg Transportation

In 2010, Petersburg gasoline and road diesel demand totaled 183,721 MMBtu, jet fuel totaled 85,461 MMBtu, AMHS marine fuel totaled 59,872 MMBtu, marine diesel totaled 57,741 MMBtu, and aviation diesel totaled 259 MMBtu.

Transportation fuel demand per household is 4 percent lower than the Petersburg Census Area average and 1 percent lower than the Southeast Alaska regional average.

Figure 60: Petersburg Transportation Fuel Demand by Fuel Type



Prince of Wales-Hyder Census Area

Prince of Wales-Hyder Census Area is comprised of Coffman Cove, Craig, Edna Bay, Hollis, Hydaburg, Hyder, Kasaan, Klawock, Metlakatla, Naukati Bay, Point Baker, Port Protection, Thorne Bay, and Whale Pass. Coffman Cove, Craig, Hollis, Hydaburg, Klawock, Metlakatla, Naukati Bay, Thorne Bay, and Whale Pass are included in this report based on the data availability criteria noted in the Introduction.

The total local energy demand per household in Prince of Wales-Hyder Census Area (611 MMBtu) is equal to the average household in Southeast Alaska.

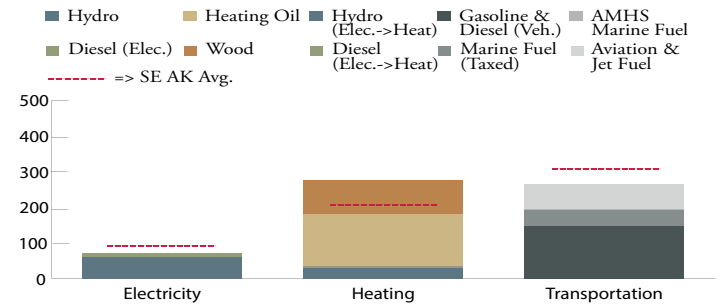
Table 25: Prince of Wales-Hyder Census Area Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	122,624	58,331	-	180,955
Diesel (Electricity)	21,773	10,169	-	31,942
Heating Fuel Oil	-	292,821	-	292,821
Wood	-	188,085	-	188,085
Gasoline & Diesel (Vehicles)	-	-	292,221	292,221
Marine Fuel (Taxed)	-	-	91,841	91,841
AMHS Marine Fuel	-	-	6,740	6,740
Jet Fuel	-	-	135,932	135,932
Aviation Fuel	-	-	412	412
Total	144,398	549,405	527,146	1,220,948

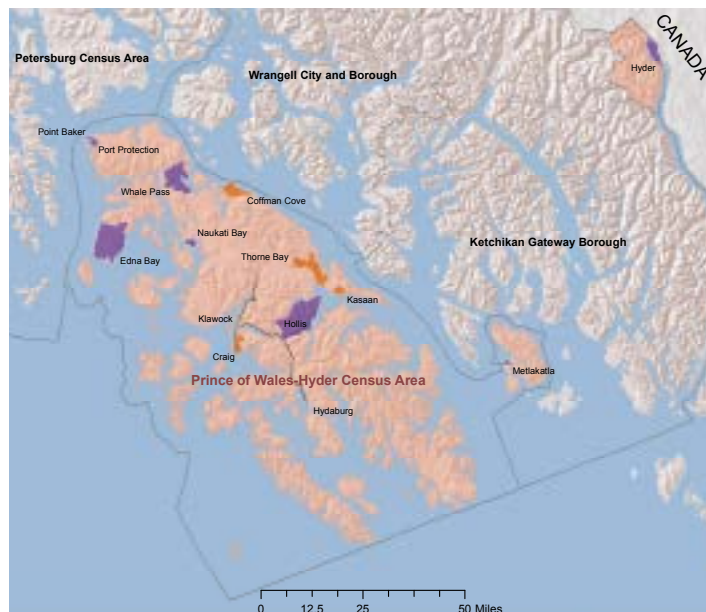
Coffman Cove has the highest total local energy demand per household (1,115 MMBtu) and Hydaburg has the lowest total local energy demand per household (417 MMBtu).

The total local energy demand per household in Prince of Wales-Hyder Census Area is comprised mostly of space heating (275 MMBtu, 45 percent) followed by transportation (264 MMBtu, 43 percent), and electricity (72 MMBtu, 12 percent).

Figure 61: Prince of Wales-Hyder Census Area Energy Demand by Fuel Type (MMBtu per Household)



Space heating is provided, in part, by electricity. The figure to the right provides the fuel demand and identifies the portion of electricity that is used for space heating.



Source: United States Census Bureau, 2012

COFFMAN COVE ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

The total local energy demand per household in Coffman Cove (1,115 MMBtu) is 82 percent higher than the average household in Prince of Wales-Hyder Census Area and 82 percent higher than the average household in Southeast Alaska.

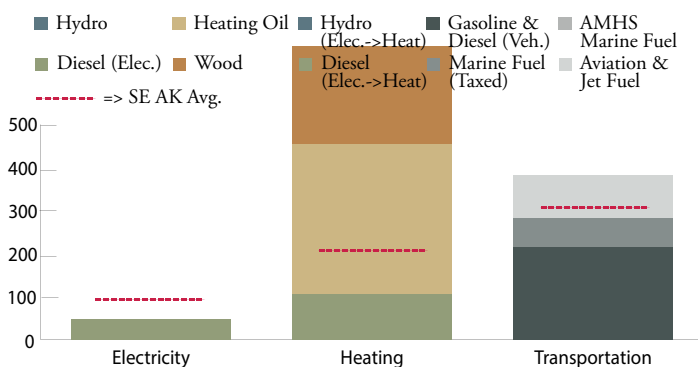
The total local energy demand in Coffman Cove is comprised mostly of space heating fuels (34,874 MMBtu, 61 percent of the total), followed by transportation fuels (19,533 MMBtu, 34 percent of the total), and electricity (2,439 MMBtu, 4 percent of the total).

Table 26: Coffman Cove Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	-	-	-	-
Diesel (Electricity)	2,439	5,470	-	7,909
Heating Fuel Oil	-	17,779	-	17,779
Wood	-	11,625	-	11,625
Gasoline & Diesel (Vehicles)	-	-	10,968	10,968
Marine Fuel (Taxed)	-	-	3,447	3,447
AMHS Marine Fuel	-	-	-	-
Jet Fuel	-	-	5,102	5,102
Aviation Fuel	-	-	15	15
Total	2,439	34,874	19,533	56,846

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

Figure 62: Coffman Cove Energy Demand by Fuel Type (MMBtu per Household)



Coffman Cove Electricity

Coffman Cove is part of the Prince of Wales Transmission Planning Region that also includes Naukati, Klawock, Craig, Hydaburg, Hollis, Kasaan, and Thorne Bay.

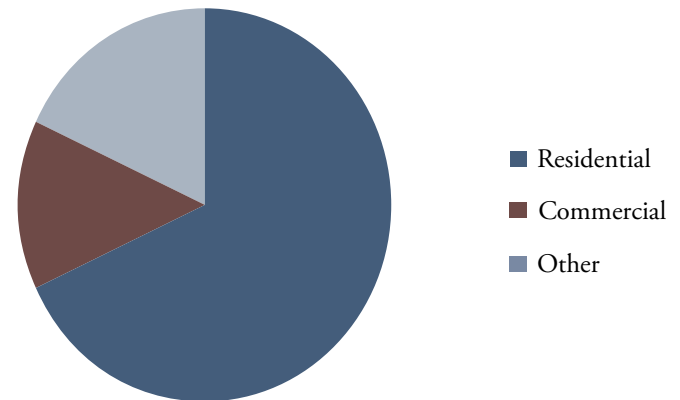
Electricity prices were 16.58 cents/kWh for customers in FY 2010; the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Coffman Cove's electricity demand totaled 2,439 MMBtu for 51 households (48 MMBtu per household) and a population of 176 (20 MMBtu per capita). Electricity demand per household is 50 percent less than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Coffman Cove cost approximately \$40,434 for the end-users; paid to Alaska Power & Telephone Company.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Coffman Cove is the residential sector with an electricity demand of 1,661 MMBtu (33 MMBtu per household) followed by the commercial sector with an electricity demand of 343 MMBtu (7 MMBtu per household) and all other activities with an electricity demand of 434 MMBtu (9 MMBtu per household).

Figure 63: Coffman Cove Electricity Demand By Sector



Coffman Cove Space Heating

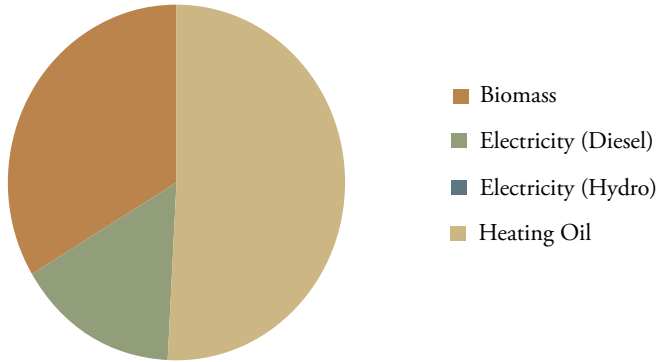
In 2010, heating fuel demand in Coffman Cove totaled 17,779 MMBtu (51 percent of space heating), biomass totaled 11,625 MMBtu (33 percent of space heating), and electricity use for heating totaled 5,470 MMBtu (16 percent of space heating).

Space heating demand per household in Coffman Cove is 149 percent higher than Prince of Wales-Hyder Census Area's average and 229 percent higher than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Coffman Cove there were 3 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Heating fuel prices were \$4.93/gallon in 2012. Electricity prices were \$16.58/kWh in 2010.

Figure 64: Coffman Cove Space Heating Demand by Fuel Type

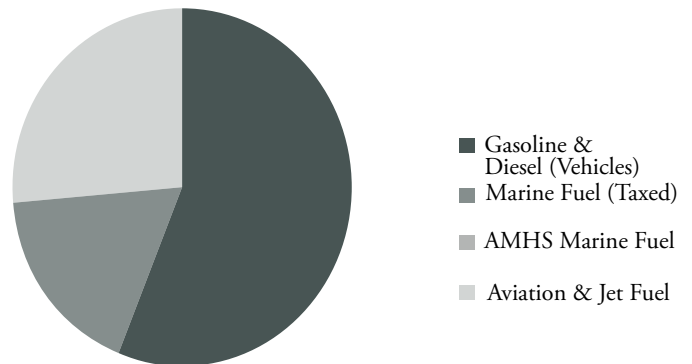


Coffman Cove Transportation

In 2010, Coffman Cove gasoline and road diesel demand totaled 10,968 MMBtu, jet fuel totaled 5,102 MMBtu, marine diesel totaled 3,447 MMBtu, AMHS marine fuel totaled 0 MMBtu, and aviation diesel totaled 15 MMBtu.

Transportation fuel demand per household is 45 percent higher than the Prince of Wales-Hyder Census Area average and 25 percent higher than the Southeast Alaska regional average.

Figure 65: Coffman Cove Transportation Fuel Demand by Fuel Type



CRAIG ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

The total local energy demand per household in Craig (589 MMBtu) is 4 percent less than the average household in Prince of Wales-Hyder Census Area and 4 percent less than the average household in Southeast Alaska.

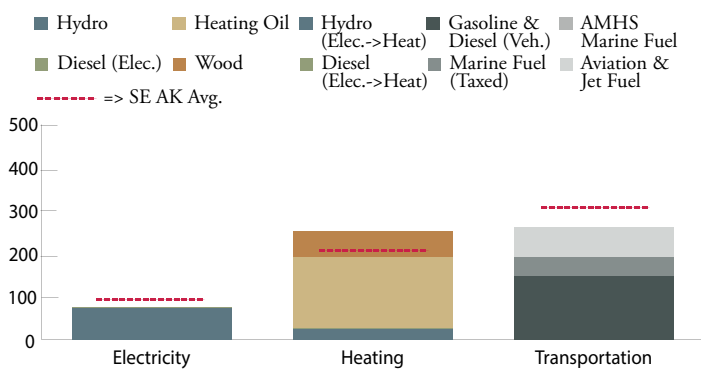
The total local energy demand in Craig is comprised mostly of transportation fuels (133,292 MMBtu, 44 percent of the total), followed by space heating fuels (128,032 MMBtu, 43 percent of the total), and electricity (38,255 MMBtu, 13 percent of the total).

Table 27: Craig Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	37,156	12,949	-	50,105
Diesel (Electricity)	1,098	383	-	1,481
Heating Fuel Oil	-	84,516	-	84,516
Wood	-	30,184	-	30,184
Gasoline & Diesel (Vehicles)	-	-	74,847	74,847
Marine Fuel (Taxed)	-	-	23,523	23,523
AMHS Marine Fuel	-	-	-	-
Jet Fuel	-	-	34,817	34,817
Aviation Fuel	-	-	105	105
Total	38,255	128,032	133,292	299,579

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

Figure 66: Craig Energy Demand by Fuel Type (MMBtu per Household)



Craig Electricity

Craig is part of the Prince of Wales Transmission Planning Region that also includes Klawock, Thorne Bay, Naukati, Coffman Cove, Kasaan, Hydaburg, Hollis, and Whale Pass.

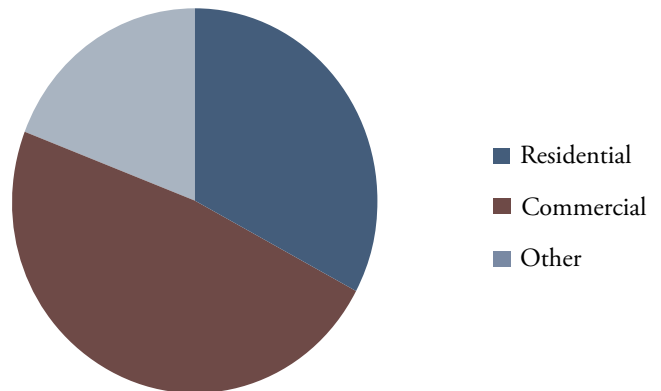
Electricity prices were 15.27 cents/kWh for customers in FY 2010; the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Craig's electricity demand totaled 38,255 MMBtu for 509 households (75 MMBtu per household) and a population of 1,201 (32 MMBtu per capita). Electricity demand per household is 22 percent less than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Craig cost approximately \$584,148 for the end-users; paid to Alaska Power & Telephone Company.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Craig is the commercial sector with an electricity demand of 18,487 MMBtu (36 MMBtu per household) followed by the residential sector with an electricity demand of 12,540 MMBtu (25 MMBtu per household) and all other activities with an electricity demand of 7,228 MMBtu (14 MMBtu per household).

Figure 67: Craig Electricity Demand by End-Use



Craig Space Heating

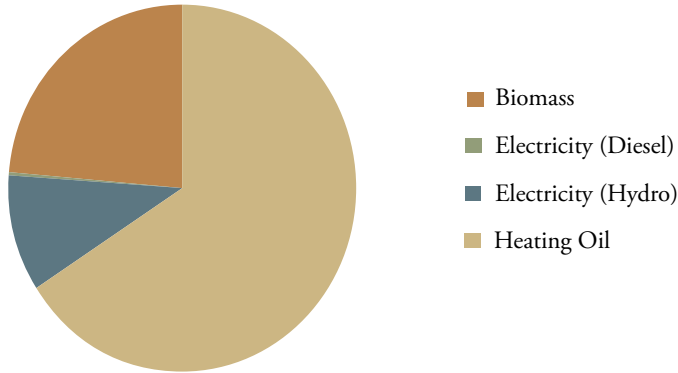
In 2010, heating fuel demand in Craig totaled 84,516 MMBtu (66 percent of space heating), biomass totaled 30,184 MMBtu (24 percent of space heating), and electricity use for heating totaled 13,331 MMBtu (10 percent of space heating).

Space heating demand per household in Craig is 8 percent lower than Prince of Wales-Hyder Census Area's average and 21 percent higher than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Craig there were 24 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Heating fuel prices were \$3.16/gallon in 2012. Electricity prices were \$15.27/kWh in 2010.

Figure 68: Craig Space Heating Demand by Fuel Type

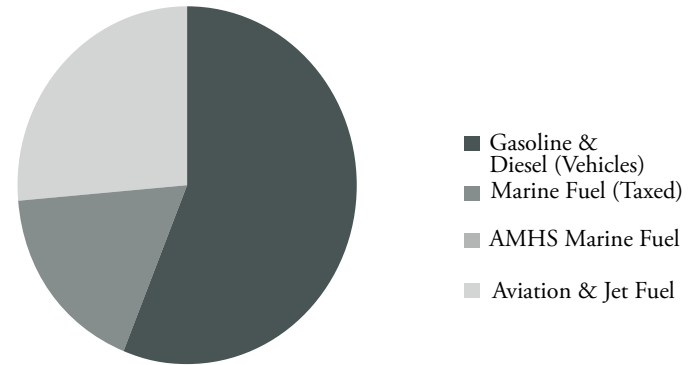


Craig Transportation

In 2010, Craig gasoline and road diesel demand totaled 74,847 MMBtu, jet fuel totaled 34,817 MMBtu, marine diesel totaled 23,523 MMBtu, aviation diesel totaled 105 MMBtu, and AMHS marine fuel totaled 0 MMBtu.

Transportation fuel demand per household is 1 percent lower than the Prince of Wales-Hyder Census Area average and 15 percent lower than the Southeast Alaska regional average.

Figure 69: Craig Transportation Fuel Demand by Fuel Type



HOLLIS ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

The total local energy demand per household in Hollis (442 MMBtu) is 28 percent less than the average household in Prince of Wales-Hyder Census Area and 28 percent less than the average household in Southeast Alaska.

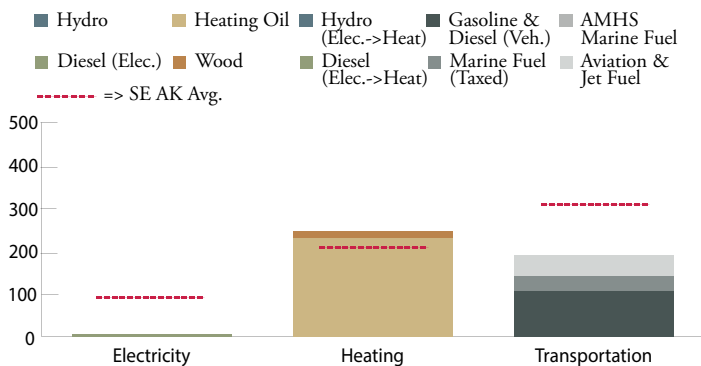
The total local energy demand in Hollis is comprised mostly of space heating fuels (15,954 MMBtu, 55 percent of the total), followed by transportation fuels (12,430 MMBtu, 43 percent of the total), and electricity (363 MMBtu, 1 percent of the total).

Table 28: Hollis Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	-	-	-	-
Diesel (Electricity)	363	-	-	363
Heating Fuel Oil	-	14,860	-	14,860
Wood	-	1,094	-	1,094
Gasoline & Diesel (Vehicles)	-	-	6,980	6,980
Marine Fuel (Taxed)	-	-	2,194	2,194
AMHS Marine Fuel	-	-	-	-
Jet Fuel	-	-	3,247	3,247
Aviation Fuel	-	-	10	10
Total	363	15,954	12,430	28,748

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

Figure 70: Hollis Energy Demand by Fuel Type (MMBtu per Household)



Hollis Electricity

Hollis is part of the Prince of Wales Transmission Planning Region that also includes Klawock, Thorne Bay, Kasaan, Naukati, Coffman Cove, Craig, Hydaburg, and Whale Pass.

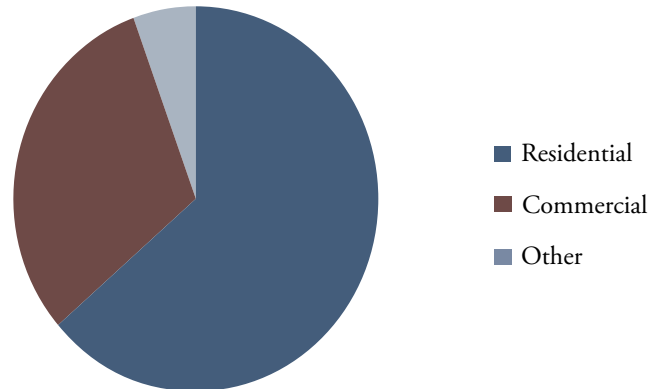
Electricity prices were 15.18 cents/kWh for customers in FY 2010; the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Hollis's electricity demand totaled 363 MMBtu for 65 households (6 MMBtu per household) and a population of 112 (3 MMBtu per capita). Electricity demand per household is 94 percent less than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Hollis cost approximately \$5,512 for the end-users; paid to Alaska Power & Telephone Company.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Hollis is the residential sector with an electricity demand of 232 MMBtu (4 MMBtu per household) followed by the commercial sector with an electricity demand of 112 MMBtu (2 MMBtu per household) and all other activities with an electricity demand of 20 MMBtu (0 MMBtu per household).

Figure 71: Hollis Electricity Demand by End-Use



Hollis Space Heating

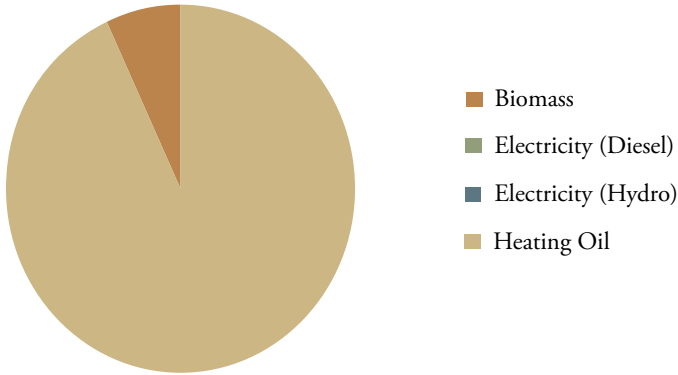
In 2010, heating fuel demand in Hollis totaled 14,860 MMBtu (93 percent of space heating), biomass totaled 1,094 MMBtu (7 percent of space heating), and electricity use for heating totaled 0 MMBtu (0 percent of space heating).

Space heating demand per household in Hollis is 11 percent lower than Prince of Wales-Hyder Census Area’s average and 18 percent higher than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Hollis there were 0 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Heating fuel prices were \$4.73/gallon in 2012. Electricity prices were \$15.18/kWh in 2010.

Figure 72: Hollis Space Heating Demand by Fuel Type



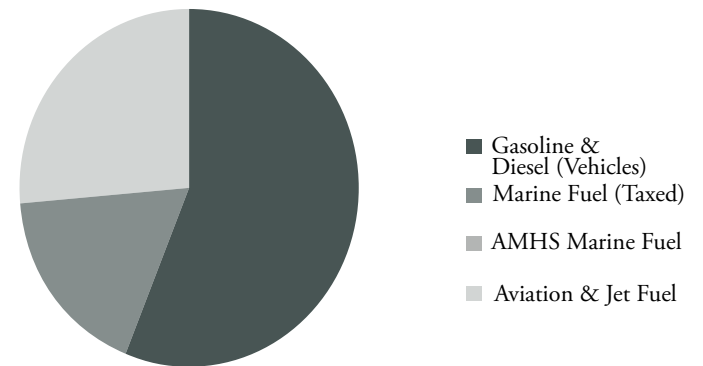
Hollis Transportation

The Hollis/Clark Bay Seaplane Base and the Hollis Seaplane Base are owned by the State of Alaska (Source: Alaska Department of Transportation, 2013).

In 2010, Hollis gasoline and road diesel demand totaled 6,980 MMBtu, jet fuel totaled 3,247 MMBtu, marine diesel totaled 2,194 MMBtu, AMHS marine fuel totaled 0 MMBtu, and aviation diesel totaled 10 MMBtu.

Transportation fuel demand per household is 28 percent lower than the Prince of Wales-Hyder Census Area average and 38 percent lower than the Southeast Alaska regional average.

Figure 73: Hollis Transportation Fuel Demand by Fuel Type



HYDABURG ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

The total local energy demand per household in Hydaburg (417 MMBtu) is 32 percent less than the average household in Prince of Wales-Hyder Census Area and 32 percent less than the average household in Southeast Alaska.

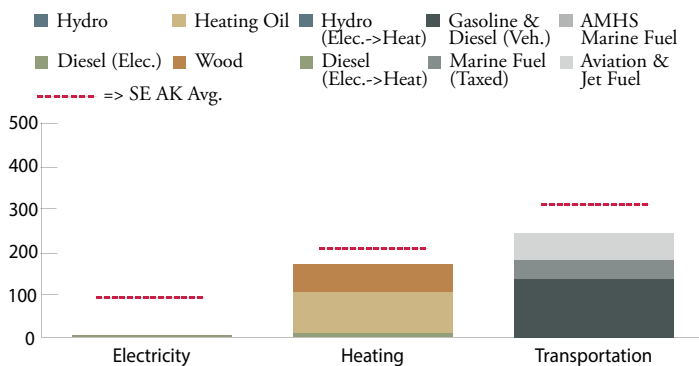
The total local energy demand in Hydaburg is comprised mostly of transportation fuels (41,730 MMBtu, 58 percent of the total), followed by space heating fuels (29,173 MMBtu, 41 percent of the total), and electricity (740 MMBtu, 1 percent of the total).

Table 29: Hydaburg Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	-	-	-	-
Diesel (Electricity)	740	1,526	-	2,266
Heating Fuel Oil	-	16,452	-	16,452
Wood	-	11,194	-	11,194
Gasoline & Diesel (Vehicles)	-	-	23,432	23,432
Marine Fuel (Taxed)	-	-	7,364	7,364
AMHS Marine Fuel	-	-	-	-
Jet Fuel	-	-	10,900	10,900
Aviation Fuel	-	-	33	33
Total	740	29,173	41,730	71,642

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

Figure 74: Hydaburg Energy Demand by Fuel Type (MMBtu per Household)



Hydaburg Electricity

Hydaburg is part of the Prince of Wales Transmission Planning Region that includes Klawock, Hollis, Thorne Bay, Kasaan, Naukati, Coffman Cove, Craig, and Whale Pass.

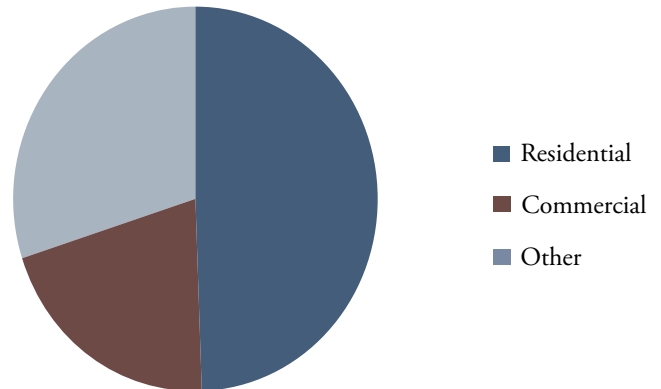
Electricity prices were 15.53 cents/kWh for customers in FY 2010; the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Hydaburg's electricity demand totaled 740 MMBtu for 172 households (4 MMBtu per household) and a population of 376 (2 MMBtu per capita). Electricity demand per household is 96 percent less than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Hydaburg cost approximately \$11,484 for the end-users; paid to Alaska Power & Telephone Company.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Hydaburg is the residential sector with an electricity demand of 366 MMBtu (2 MMBtu per household) followed by the all other activities sector with an electricity demand of 221 MMBtu (1 MMBtu per household) and the commercial sector with an electricity demand of 152 MMBtu (1 MMBtu per household).

Figure 75: Hydaburg Electricity Demand by End-Use



Hydaburg Space Heating

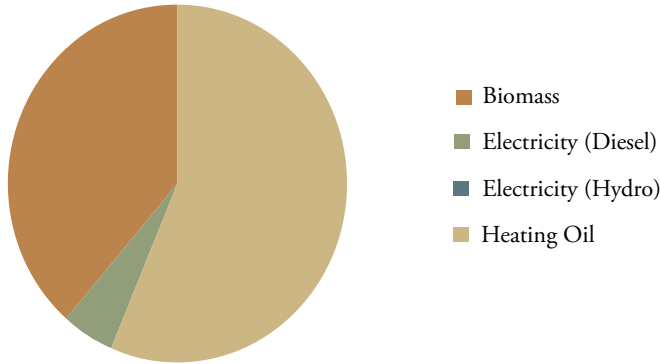
In 2010, heating fuel demand in Hydaburg totaled 16,452 MMBtu (56 percent of space heating), biomass totaled 11,194 MMBtu (38 percent of space heating), and electricity use for heating totaled 1,526 MMBtu (5 percent of space heating).

Space heating demand per household in Hydaburg is 38 percent lower than Prince of Wales-Hyder Census Area’s average and 18 percent lower than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Hydaburg there were 7 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Heating fuel prices were \$4.73/gallon in 2012. Electricity prices were \$15.53/kWh in 2010.

Figure 76: Hydaburg Space Heating Demand by Fuel Type

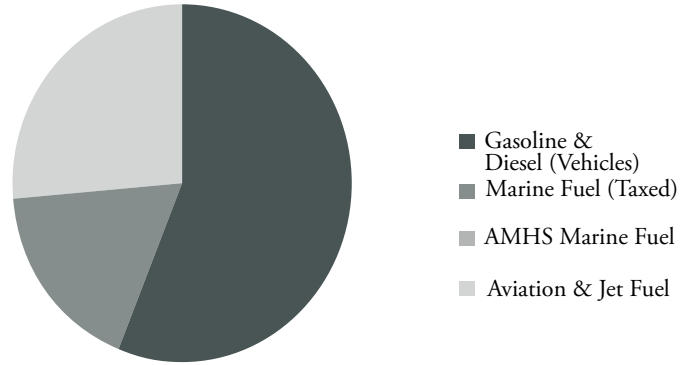


Hydaburg Transportation

In 2010, Hydaburg gasoline and road diesel demand totaled 23,432 MMBtu, jet fuel totaled 10,900 MMBtu, marine diesel totaled 7,364 MMBtu, aviation diesel totaled 33 MMBtu, and AMHS marine fuel totaled 0 MMBtu.

Transportation fuel demand per household is 8 percent lower than the Prince of Wales-Hyder Census Area average and 21 percent lower than the Southeast Alaska regional average.

Figure 77: Hydaburg Transportation Fuel Demand by Fuel Type



KLAWOCK ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

The total local energy demand per household in Klawock (521 MMBtu) is 15 percent less than the average household in Prince of Wales-Hyder Census Area and 15 percent less than the average household in Southeast Alaska.

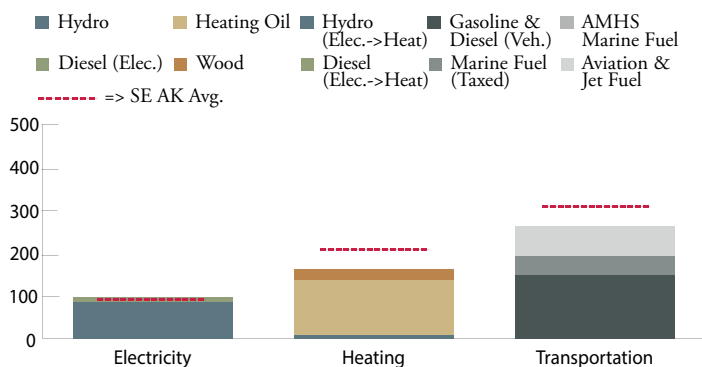
The total local energy demand in Klawock is comprised mostly of transportation fuels (83,793 MMBtu, 50 percent of the total), followed by space heating fuels (52,185 MMBtu, 31 percent of the total), and electricity (31,383 MMBtu, 19 percent of the total).

Table 30: Klawock Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	27,250	2,117	-	29,367
Diesel (Electricity)	4,133	321	-	4,454
Heating Fuel Oil	-	41,130	-	41,130
Wood	-	8,616	-	8,616
Gasoline & Diesel (Vehicles)	-	-	47,052	47,052
Marine Fuel (Taxed)	-	-	14,788	14,788
AMHS Marine Fuel	-	-	-	-
Jet Fuel	-	-	21,887	21,887
Aviation Fuel	-	-	66	66
Total	31,383	52,185	83,793	167,361

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

Figure 78: Klawock Energy Demand by Fuel Type (MMBtu per Household)



Klawock Electricity

Klawock is part of the Prince of Wales Transmission Planning Region that includes Hydaburg, Hollis, Thorne Bay, Kasaan, Naukati, Coffman Cove, Craig, and Whale Pass.

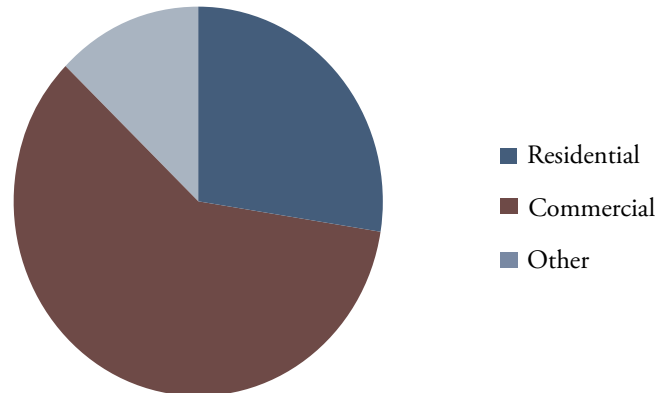
Electricity prices were 15.27 cents/kWh for customers in FY 2010; the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Klawock's electricity demand totaled 31,383 MMBtu for 321 households (98 MMBtu per household) and a population of 755 (42 MMBtu per capita). Electricity demand per household is 2 percent more than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Klawock cost approximately \$479,214 for the end-users; paid to Alaska Power & Telephone Company.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Klawock is the commercial sector with an electricity demand of 18,771 MMBtu (58 MMBtu per household) followed by the residential sector with an electricity demand of 8,658 MMBtu (27 MMBtu per household) and all other activities with an electricity demand of 3,953 MMBtu (12 MMBtu per household).

Figure 79: Klawock Electricity Demand by End-Use



Klawock Space Heating

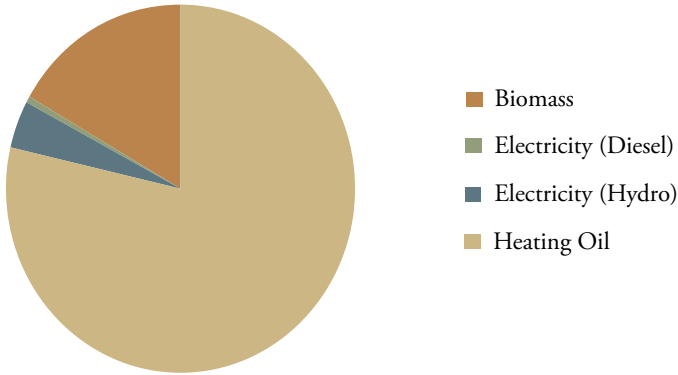
In 2010, heating fuel demand in Klawock totaled 41,130 MMBtu (79 percent of space heating), biomass totaled 8,616 MMBtu (17 percent of space heating), and electricity use for heating totaled 2,439 MMBtu (5 percent of space heating).

Space heating demand per household in Klawock is 41 percent lower than Prince of Wales-Hyder Census Area’s average and 22 percent lower than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Klawock there were 19 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Heating fuel prices were \$4.73/gallon in 2012. Electricity prices were \$15.27/kWh in 2010.

Figure 80: Klawock Space Heating Demand by Fuel Type

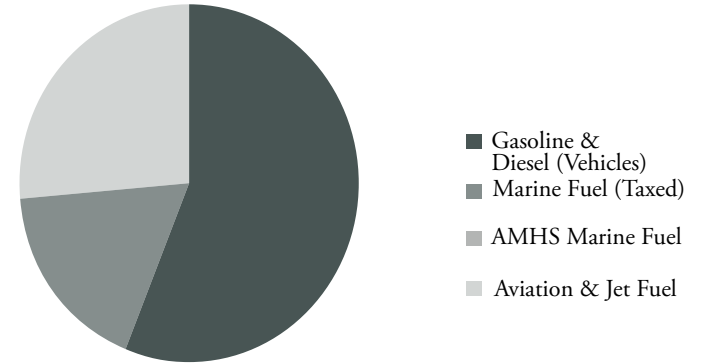


Klawock Transportation

In 2010, Klawock gasoline and road diesel demand totaled 47,052 MMBtu, jet fuel totaled 21,887 MMBtu, marine diesel totaled 14,788 MMBtu, aviation diesel totaled 66 MMBtu, and AMHS marine fuel totaled 0 MMBtu,.

Transportation fuel demand per household is 1 percent lower than the Prince of Wales-Hyder Census Area average and 15 percent lower than the Southeast Alaska regional average.

Figure 84: Klawock Transportation Fuel Demand by Fuel Type



METLAKATLA ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

The total local energy demand per household in Metlakatla (678 MMBtu) is 11 percent more than the average household in Prince of Wales-Hyder Census Area and 11 percent more than the average household in Southeast Alaska.

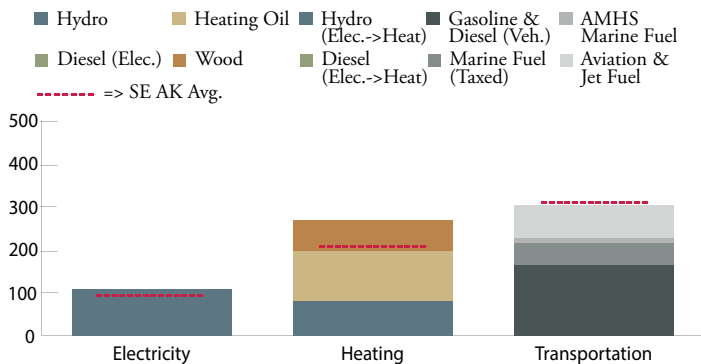
The total local energy demand in Metlakatla is comprised mostly of transportation fuels (162,673 MMBtu, 45 percent of the total), followed by space heating fuels (143,681 MMBtu, 39 percent of the total), and electricity (58,218 MMBtu, 16 percent of the total).

Table 31: Metlakatla Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	58,218	43,264	-	101,483
Diesel (Electricity)	-	-	-	-
Heating Fuel Oil	-	62,226	-	62,226
Wood	-	38,190	-	38,190
Gasoline & Diesel (Vehicles)	-	-	87,560	87,560
Marine Fuel (Taxed)	-	-	27,519	27,519
AMHS Marine Fuel	-	-	6,740	6,740
Jet Fuel	-	-	40,730	40,730
Aviation Fuel	-	-	123	123
Total	58,218	143,681	162,673	364,572

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

Figure 82: Metlakatla Energy Demand by Fuel Type (MMBtu per Household)



Metlakatla Electricity

Metlakatla is part of the SEAPA Transmission Planning Region that includes Ketchikan, Saxman, Wrangell, Petersburg, and Kake.

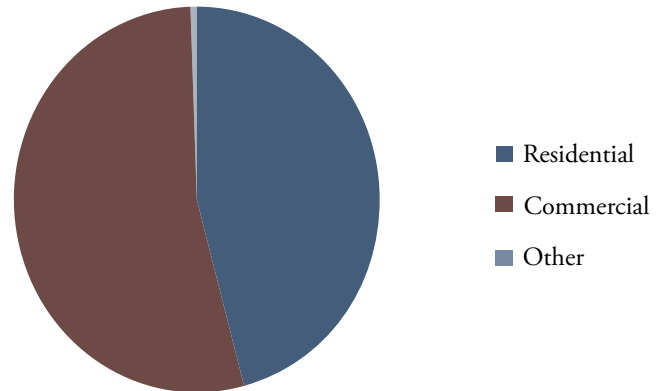
Electricity prices were 9.13 cents/kWh for customers in FY 2010; the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Metlakatla's electricity demand totaled 58,218 MMBtu for 538 households (108 MMBtu per household) and a population of 1,405 (46 MMBtu per capita). Electricity demand per household is 13 percent more than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Metlakatla cost approximately \$531,532 for the end-users; paid to Metlakatla Power & Light.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Metlakatla is the residential sector with an electricity demand of 26,758 MMBtu (50 MMBtu per household) followed by the commercial sector with an electricity demand of 31,271 MMBtu (58 MMBtu per household) and all other activities with an electricity demand of 190 MMBtu (0 MMBtu per household).

Figure 83: Metlakatla Electricity Demand by End-Use



Metlakatla Space Heating

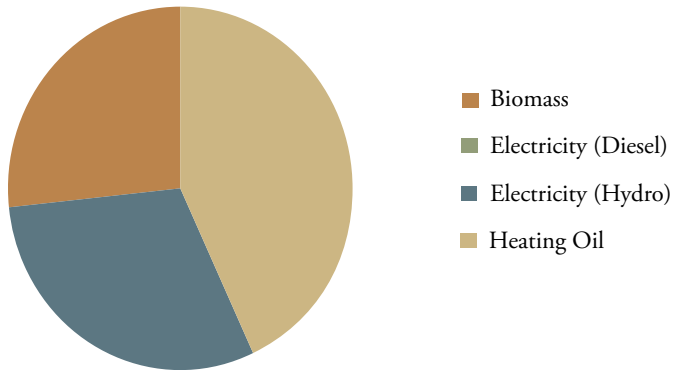
In 2010, heating fuel demand in Metlakatla totaled 62,226 MMBtu (43 percent of space heating), electricity use for heating totaled 43,264 MMBtu (30 percent of space heating), and biomass totaled 38,190 MMBtu (27 percent of space heating).

Space heating demand per household in Metlakatla is 3 percent lower than Prince of Wales-Hyder Census Area's average and 28 percent higher than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Metlakatla there were 0 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Heating fuel prices were \$4.70/gallon in 2012. Electricity prices were \$9.13/kWh in 2010.

Figure 84: Metlakatla Space Heating Demand by Fuel Type

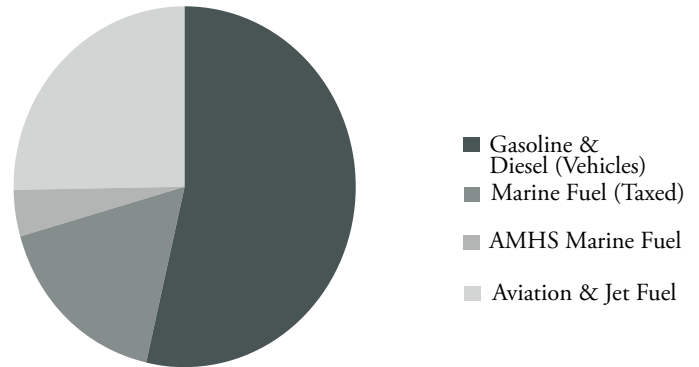


Metlakatla Transportation

In 2010, Metlakatla gasoline and road diesel demand totaled 87,560 MMBtu, jet fuel totaled 40,730 MMBtu, marine diesel totaled 27,519 MMBtu, AMHS marine fuel totaled 6,740 MMBtu, and aviation diesel totaled 123 MMBtu.

Transportation fuel demand per household is 14 percent higher than the Prince of Wales-Hyder Census Area average and 2 percent lower than the Southeast Alaska regional average.

Figure 85: Metlakatla Transportation Fuel Demand by Fuel Type



NAUKATI BAY ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

The total local energy demand per household in Naukati Bay (806 MMBtu) is 32 percent more than the average household in Prince of Wales-Hyder Census Area and 32 percent more than the average household in Southeast Alaska.

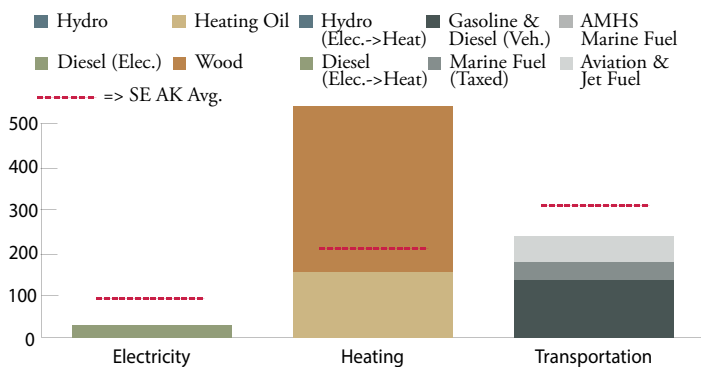
The total local energy demand in Naukati Bay is comprised mostly of space heating fuels (28,597 MMBtu, 67 percent of the total), followed by transportation fuels (12,541 MMBtu, 29 percent of the total), and electricity (1,580 MMBtu, 4 percent of the total).

Table 32: Naukati Bay Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	-	-	-	-
Diesel (Electricity)	1,580	-	-	1,580
Heating Fuel Oil	-	8,093	-	8,093
Wood	-	20,503	-	20,503
Gasoline & Diesel (Vehicles)	-	-	7,042	7,042
Marine Fuel (Taxed)	-	-	2,213	2,213
AMHS Marine Fuel	-	-	-	-
Jet Fuel	-	-	3,276	3,276
Aviation Fuel	-	-	10	10
Total	1,580	28,597	12,541	42,718

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

Figure 86: Naukati Bay Energy Demand by Fuel Type (MMBtu per Household)



Naukati Bay Electricity

Naukati Bay is part of the Prince of Wales Transmission Planning Region that includes Coffman Cove, Klawock, Craig, Hydaburg, Hollis, Thorne Bay, Kasaan, and Whale Pass.

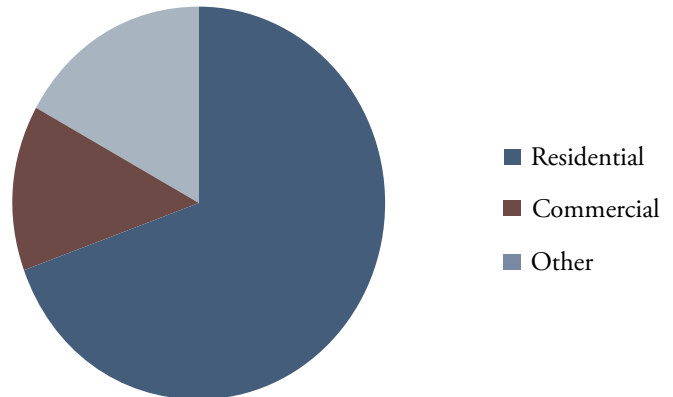
Electricity prices were 18.1 cents/kWh for customers in FY 2010; the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Naukati Bay's electricity demand totaled 1,580 MMBtu for 53 households (30 MMBtu per household) and a population of 113 (13 MMBtu per capita). Electricity demand per household is 69 percent less than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Naukati Bay cost approximately \$28,597 for the end-users; paid to Alaska Power & Telephone Company.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Naukati Bay is the residential sector with an electricity demand of 1,100 MMBtu (21 MMBtu per household) followed by the commercial sector with an electricity demand of 213 MMBtu (4 MMBtu per household) and all other activities with an electricity demand of 267 MMBtu (5 MMBtu per household).

Figure 87: Naukati Bay Electricity Demand by End-Use



Naukati Bay Space Heating

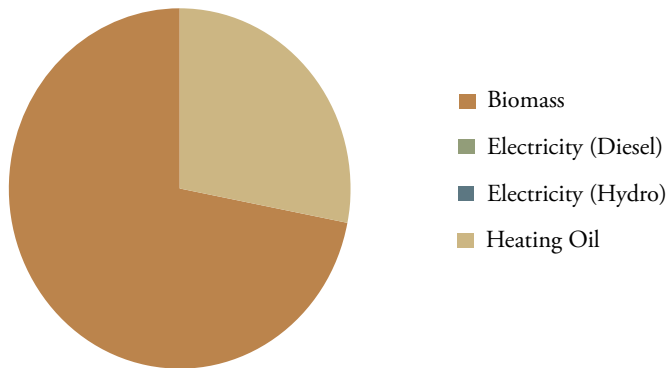
In 2010, biomass demand totaled 20,503 MMBtu (72 percent of space heating), heating fuel demand in Naukati Bay totaled 8,093 MMBtu (28 percent of space heating), and electricity use for heating totaled 0 MMBtu (0 percent of space heating).

Space heating demand per household in Naukati Bay is 96 percent higher than Prince of Wales-Hyder Census Area's average and 160 percent higher than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Naukati Bay there were 0 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Heating fuel prices were \$4.77/gallon in 2012. Electricity prices were \$18.10/kWh in 2010.

Figure 88: Naukati Bay Space Heating Demand by Fuel Type

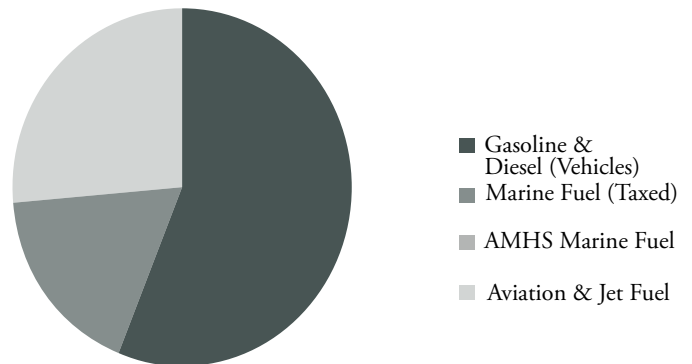


Naukati Bay Transportation

In 2010, Naukati Bay gasoline and road diesel demand totaled 7,042 MMBtu, jet fuel totaled 3,276 MMBtu, marine diesel totaled 2,213 MMBtu, aviation diesel totaled 10 MMBtu, and AMHS marine fuel totaled 0 MMBtu.

Transportation fuel demand per household is 10 percent lower than the Prince of Wales-Hyder Census Area average and 23 percent lower than the Southeast Alaska regional average.

Figure 89: Naukati Bay Transportation Fuel Demand by Fuel Type



THORNE BAY ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

The total local energy demand per household in Thorne Bay (623 MMBtu) is 2 percent more than the average household in Prince of Wales-Hyder Census Area and 2 percent more than the average household in Southeast Alaska.

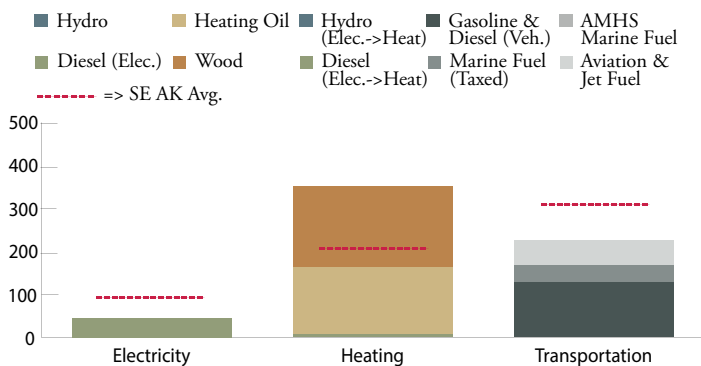
The total local energy demand in Thorne Bay is comprised mostly of space heating fuels (81,234 MMBtu, 57 percent of the total), followed by transportation fuels (52,274 MMBtu, 36 percent of the total), and electricity (10,370 MMBtu, 7 percent of the total).

Table 33: Thorne Bay Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	-	-	-	-
Diesel (Electricity)	10,370	1,407	-	11,777
Heating Fuel Oil	-	36,221	-	36,221
Wood	-	43,606	-	43,606
Gasoline & Diesel (Vehicles)	-	-	29,353	29,353
Marine Fuel (Taxed)	-	-	9,225	9,225
AMHS Marine Fuel	-	-	-	-
Jet Fuel	-	-	13,654	13,654
Aviation Fuel	-	-	41	41
Total	10,370	81,234	52,274	143,878

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

Figure 90: Thorne Bay Energy Demand by Fuel Type (MMBtu per Household)



Thorne Bay Electricity

Thorne Bay is part of the Prince of Wales Transmission Planning Region that includes Coffman Cove, Naukati Bay, Klawock, Craig, Hydaburg, Hollis, Kasaan, and Whale Pass.

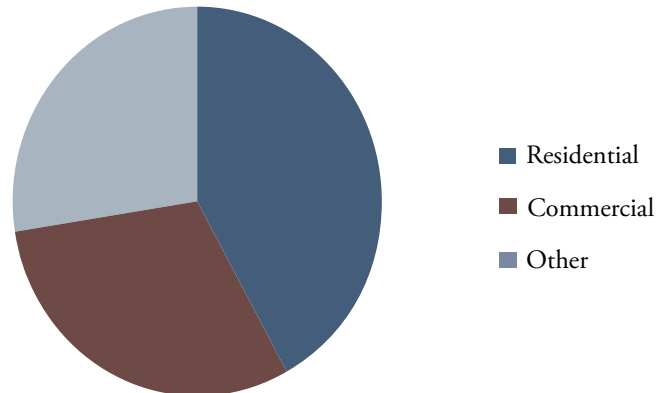
Electricity prices were 15.4 cents/kWh for customers in FY 2010; the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Thorne Bay's electricity demand totaled 10,370 MMBtu for 231 households (45 MMBtu per household) and a population of 471 (19 MMBtu per capita). Electricity demand per household is 53 percent less than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Thorne Bay cost approximately \$159,705 for the end-users; paid to Alaska Power & Telephone Company.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Thorne Bay is the residential sector with an electricity demand of 4,360 MMBtu (19 MMBtu per household) followed by the commercial sector with an electricity demand of 3,173 MMBtu (14 MMBtu per household) and all other activities with an electricity demand of 2,837 MMBtu (12 MMBtu per household).

Figure 91: Thorne Bay Electricity Demand by End-Use



Thorne Bay Space Heating

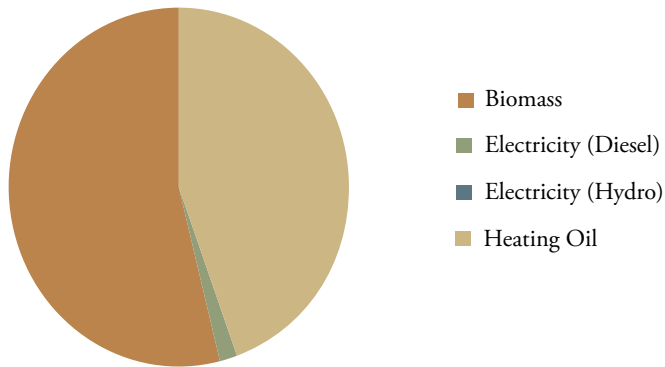
In 2010, biomass demand totaled 43,606 MMBtu (54 percent of space heating), heating fuel demand in Thorne Bay totaled 36,221 MMBtu (45 percent of space heating), and electricity use for heating totaled 1,407 MMBtu (2 percent of space heating).

Space heating demand per household in Thorne Bay is 28 percent higher than Prince of Wales-Hyder Census Area's average and 69 percent higher than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Thorne Bay there were 6 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Heating fuel prices were \$3.16/gallon in 2012. Electricity prices were \$15.40/kWh in 2010.

Figure 92: Thorne Bay Space Heating Demand by Fuel Type

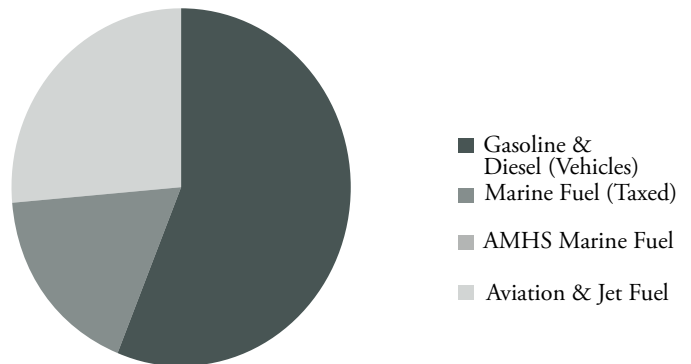


Thorne Bay Transportation

In 2010, Thorne Bay gasoline and road diesel demand totaled 29,353 MMBtu, jet fuel totaled 13,654 MMBtu, marine diesel totaled 9,225 MMBtu, AMHS marine fuel totaled 0 MMBtu, and aviation diesel totaled 41 MMBtu.

Transportation fuel demand per household is 14 percent lower than the Prince of Wales-Hyder Census Area average and 26 percent lower than the Southeast Alaska regional average.

Figure 93: Thorne Bay Transportation Fuel Demand by Fuel Type



WHALE PASS ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

The total local energy demand per household in Whale Pass (1,029 MMBtu) is 68 percent more than the average household in Prince of Wales-Hyder Census Area and 68 percent more than the average household in Southeast Alaska.

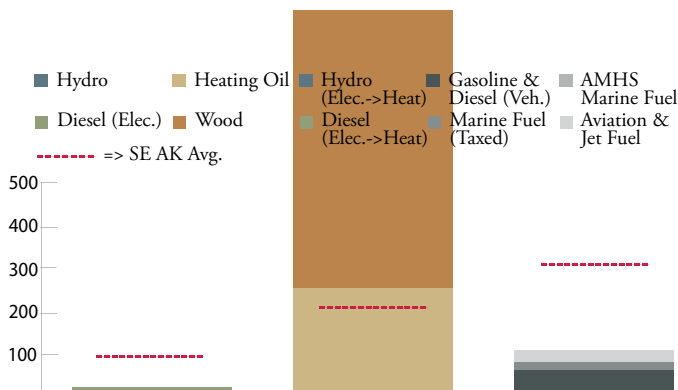
The total local energy demand in Whale Pass is comprised mostly of space heating fuels (28,776 MMBtu, 87 percent of the total), followed by transportation fuels (3,441 MMBtu, 10 percent of the total), and electricity (700 MMBtu, 2 percent of the total).

Table 34: Whale Pass Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	-	-	-	-
Diesel (Electricity)	700	-	-	700
Heating Fuel Oil	-	8,093	-	8,093
Wood	-	20,683	-	20,683
Gasoline & Diesel (Vehicles)	-	-	1,932	1,932
Marine Fuel (Taxed)	-	-	607	607
AMHS Marine Fuel	-	-	-	-
Jet Fuel	-	-	899	899
Aviation Fuel	-	-	3	3
Total	700	28,776	3,441	32,917

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

Figure 94: Whale Pass Energy Demand by Fuel Type (MMBtu per Household)



Whale Pass Electricity

Whale Pass is part of the Prince of Wales Transmission Planning Region that includes Coffman Cove, Naukati Bay, Klawock, Craig, Hydaburg, Hollis, Thorne Bay, and Kasaan.

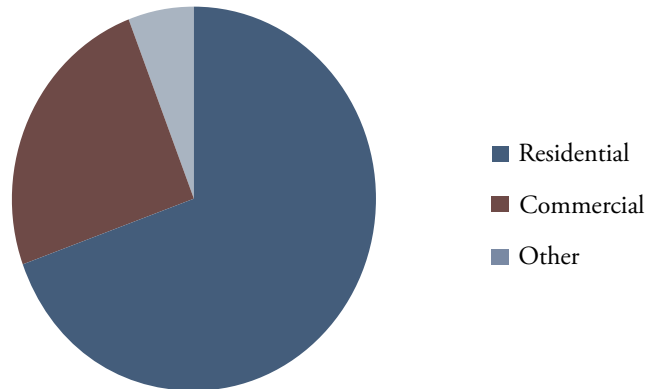
Electricity prices were 25.91 cents/kWh for customers in FY 2010; the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Whale Pass's electricity demand totaled 700 MMBtu for 32 households (22 MMBtu per household) and a population of 31 (9 MMBtu per capita). Electricity demand per household is 77 percent less than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Whale Pass cost approximately \$18,136 for the end-users; paid to Alaska Power & Telephone Company.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Whale Pass is the residential sector with an electricity demand of 488 MMBtu (15 MMBtu per household) followed by the commercial sector with an electricity demand of 172 MMBtu (5 MMBtu per household) and all other activities with an electricity demand of 40 MMBtu (1 MMBtu per household).

Figure 95: Whale Pass Electricity Demand by End-Use



Whale Pass Space Heating

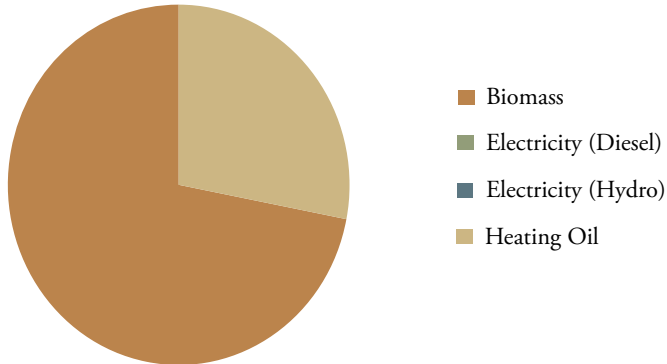
In 2010, biomass demand totaled 20,683 MMBtu (72 percent of space heating), heating fuel demand in Whale Pass totaled 8,093 MMBtu (28 percent of space heating), and electricity use for heating totaled 0 MMBtu (0 percent of space heating).

Space heating demand per household in Whale Pass is 227 percent higher than Prince of Wales-Hyder Census Area’s average and 332 percent higher than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Whale Pass there were 0 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Heating fuel prices were \$4.84/gallon in 2012. Electricity prices were \$25.91/kWh in 2010.

Figure 96: Whale Pass Space Heating Demand by Fuel Type

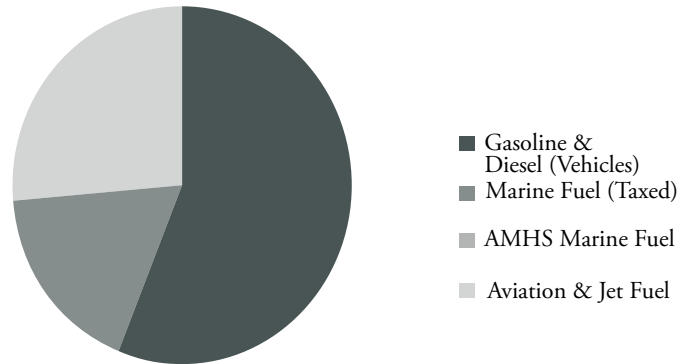


Whale Pass Transportation

In 2010, Whale Pass gasoline and road diesel demand totaled 1,932 MMBtu, jet fuel totaled 899 MMBtu, marine diesel totaled 607 MMBtu, aviation diesel totaled 3 MMBtu, and AMHS marine fuel totaled 0 MMBtu.

Transportation fuel demand per household is 59 percent lower than the Prince of Wales-Hyder Census Area average and 65 percent lower than the Southeast Alaska regional average.

Figure 97: Whale Pass Transportation Fuel Demand by Fuel Type



Sitka City and Borough

SITKA ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

Sitka is the sole community listed in Sitka City and Borough listed in the DOLWD list of 42 communities in Southeast Alaska.

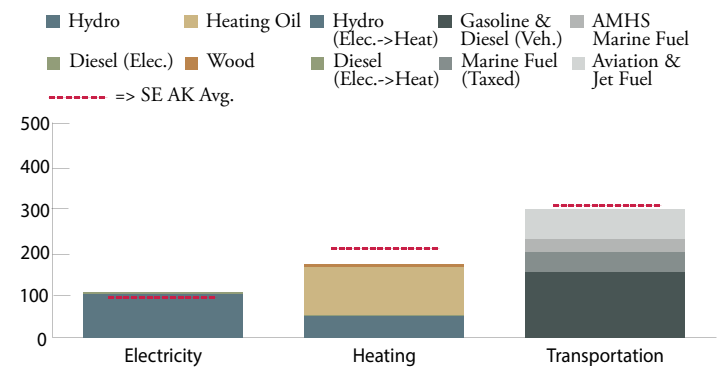
The total local energy demand per household in Sitka City and Borough (579 MMBtu) is 5 percent lower than the average household in Southeast Alaska.

Table 35: Sitka Energy Demand by Fuel Type (MMBtu)

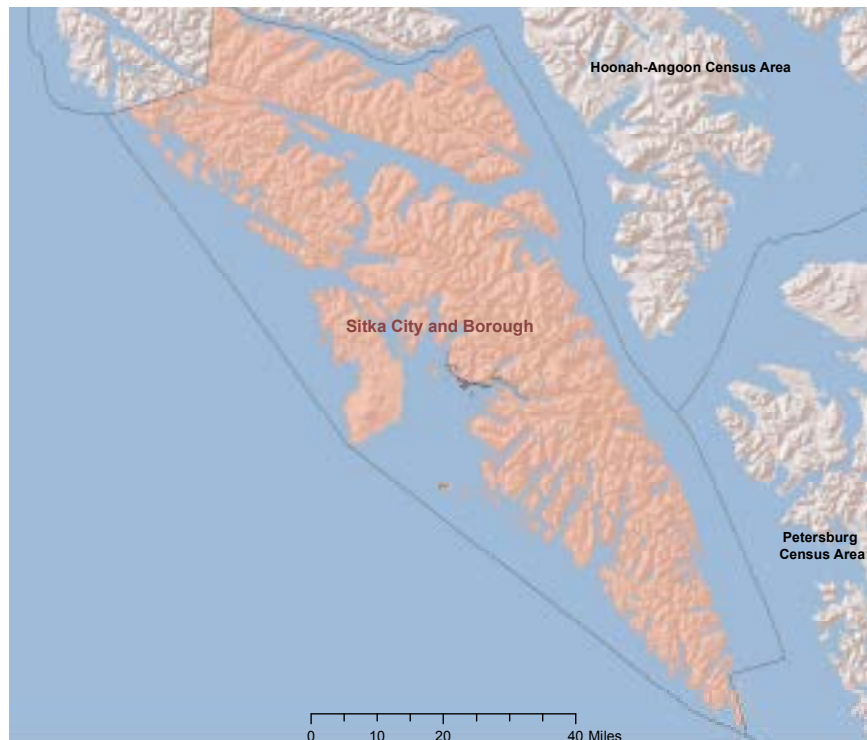
	Electricity	Heating	Transportation	Total
Hydro	371,350	185,767	-	557,117
Diesel (Electricity)	13,693	6,850	-	20,542
Heating Fuel Oil	-	402,791	-	402,791
Wood	-	29,779	-	29,779
Gasoline & Diesel (Vehicles)	-	-	553,468	553,468
Marine Fuel (Taxed)	-	-	173,947	173,947
AMHS Marine Fuel	-	-	105,999	105,999
Jet Fuel	-	-	257,457	257,457
Aviation Fuel	-	-	780	780
Total	385,043	625,187	1,091,651	2,101,880

The total local energy demand in Sitka City and Borough is comprised mostly of transportation (301 MMBtu, 52 percent) followed by space heating (172 MMBtu, 30 percent), and electricity (106 MMBtu, 18 percent).

Figure 98: Sitka Energy Demand by Fuel Type (MMBtu per Household)



Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.



Source: United States Census Bureau, 2012

Sitka Electricity

Sitka is the main community in the Baranof Island Transmission Planning Region.

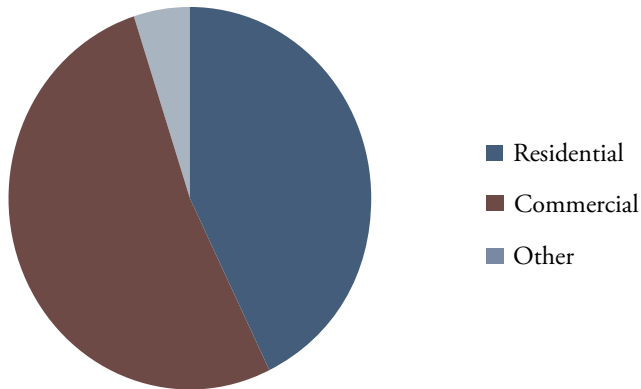
Electricity prices were 9.47 cents/kWh for customers in FY 2010; the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Sitka's electricity demand totaled 385,043 MMBtu for 3632 households (106 MMBtu per household) and a population of 8,881 (43 MMBtu per capita). Electricity demand per household is 10 percent more than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Sitka cost approximately \$3,646,355 for the end-users; paid to Sitka Electric Department.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Sitka is the residential sector with an electricity demand of 165,622 MMBtu (46 MMBtu per household) followed by the commercial sector with an electricity demand of 200,343 MMBtu (55 MMBtu per household) and all other activities with an electricity demand of 19,077 MMBtu (5 MMBtu per household).

Figure 99: Sitka Electricity Demand by End-Use



Sitka Space Heating

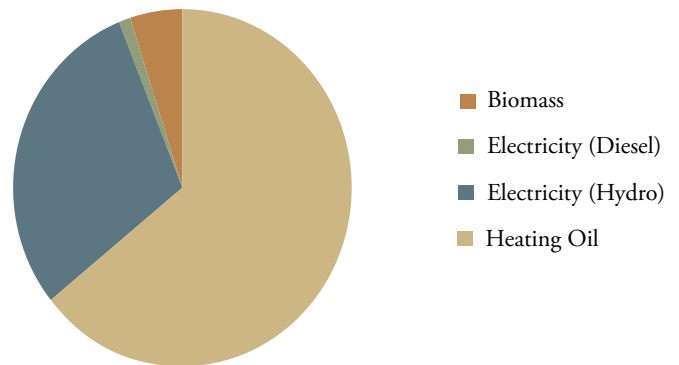
In 2010, heating fuel demand in Sitka totaled 402,791 MMBtu (64 percent of space heating), electricity use for heating totaled 192,617 MMBtu (31 percent of space heating), and biomass totaled 29,779 MMBtu (5 percent of space heating).

Space heating demand per household in Sitka is 17 percent lower than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Sitka there were 167 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Heating fuel prices were \$4.70/gallon in 2012. Electricity prices were \$9.47/kWh in 2010.

Figure 100: Sitka Space Heating Demand by Fuel Type

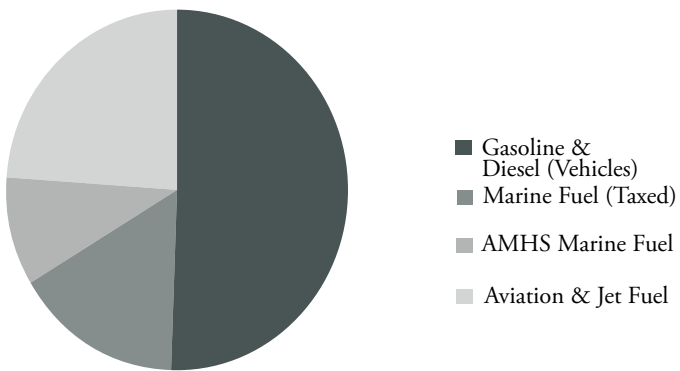


Sitka Transportation

In 2010, Sitka gasoline and road diesel demand totaled 553,468 MMBtu, jet fuel totaled 257,457 MMBtu, marine diesel totaled 173,947 MMBtu, AMHS marine fuel totaled 105,999 MMBtu, and aviation diesel totaled 780 MMBtu.

Transportation fuel demand per household is 2 percent lower than the Southeast Alaska regional average.

Figure 101: Sitka Transportation Fuel Demand by Fuel Type



Skagway Borough

SKAGWAY ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

Skagway is the sole community listed in Skagway City and Borough listed in the DOLWD list of 42 communities in Southeast Alaska.

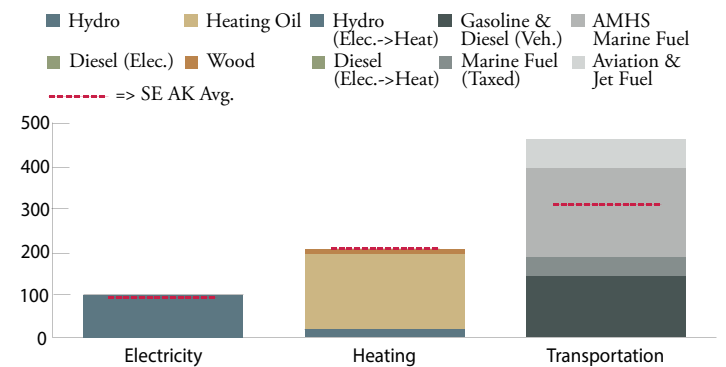
The total local energy demand per household in Skagway (765 MMBtu) is 25 percent higher than the average household in Southeast Alaska.

Table 36: Skagway Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	40,162	7,169	-	47,331
Diesel (Electricity)	64	11	-	75
Heating Fuel Oil	-	70,777	-	70,777
Wood	-	5,129	-	5,129
Gasoline & Diesel (Vehicles)	-	-	57,335	57,335
Marine Fuel (Taxed)	-	-	18,020	18,020
AMHS Marine Fuel	-	-	84,602	84,602
Jet Fuel	-	-	26,670	26,670
Aviation Fuel	-	-	81	81
Total	40,226	83,086	186,708	310,020

The total local energy demand in Skagway is comprised mostly of transportation fuels (186,708 MMBtu, 60 percent of the total), followed by space heating fuels (83,086 MMBtu, 27 percent of the total), and electricity (40,226 MMBtu, 13 percent of the total).

Figure 102: Skagway Energy Demand by Fuel Type (MMBtu per Household)



Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.



Source: United States Census Bureau, 2012

Skagway Electricity

Skagway is part of the Upper Lynn Canal Transmission Planning Region that includes Haines, Chilkat Valley, and Klukwan.

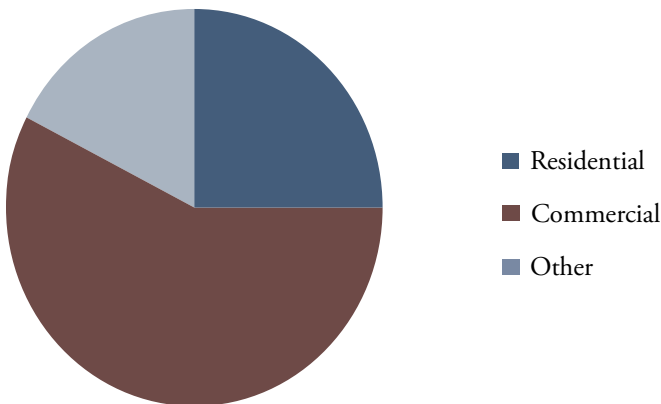
Electricity prices were 15.2 cents/kWh for customers in FY 2010; the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Skagway's electricity demand totaled 40,226 MMBtu for 405 households (99 MMBtu per household) and a population of 920 (44 MMBtu per capita). Electricity demand per household is 3 percent higher than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Skagway cost approximately \$611,439 for the end-users; paid to Alaska Power & Telephone Company.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Skagway is the commercial sector with an electricity demand of 23,205 MMBtu (57 MMBtu per household) followed by the residential sector with an electricity demand of 10,075 MMBtu (25 MMBtu per household) and all other activities with an electricity demand of 6,947 MMBtu (17 MMBtu per household).

Figure 103: Skagway Electricity Demand by End-Use



Skagway Space Heating

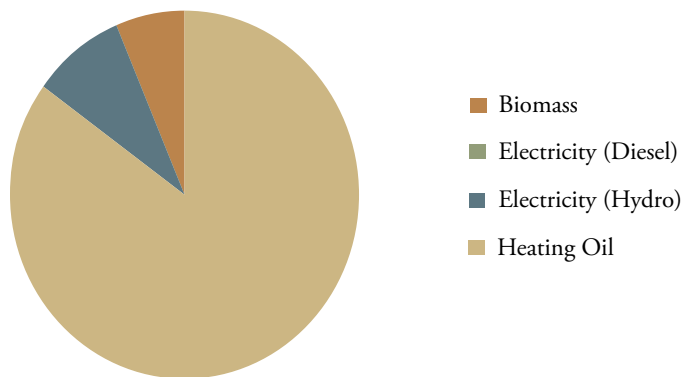
In 2010, heating fuel demand in Skagway totaled 70,777 MMBtu (85 percent of space heating), electricity use for heating totaled 7,180 MMBtu (9 percent of space heating), and biomass totaled 5,129 MMBtu (6 percent of space heating).

Space heating demand per household in Skagway is 1 percent less than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Skagway there were 31 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Heating fuel prices were \$4.74/gallon in 2012. Electricity prices were \$15.20/kWh in 2010.

Figure 104: Skagway Space Heating Demand by Fuel Type

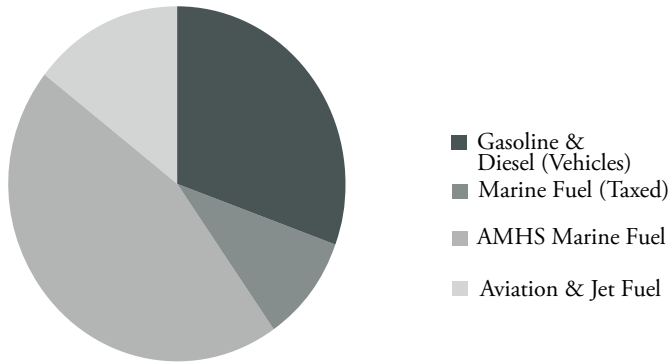


Skagway Transportation

In 2010, Skagway gasoline and road diesel demand totaled 57,335 MMBtu, AMHS marine fuel totaled 84,602 MMBtu, jet fuel totaled 26,670 MMBtu, marine diesel totaled 18,020 MMBtu, and aviation diesel totaled 81 MMBtu.

Transportation fuel demand per household is 50 percent more than the Southeast Alaska regional average.

Figure 105: Skagway Transportation Fuel Demand by Fuel Type



Wrangell City and Borough

WRANGELL ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

Wrangell is the sole community listed in Wrangell City and Borough listed in the DOLWD list of 42 communities in Southeast Alaska. The total local energy demand per household in Wrangell (902 MMBtu) is 48 percent higher than the average household in Southeast Alaska.

Table 37: Wrangell Energy Demand by Fuel Type (MMBtu)

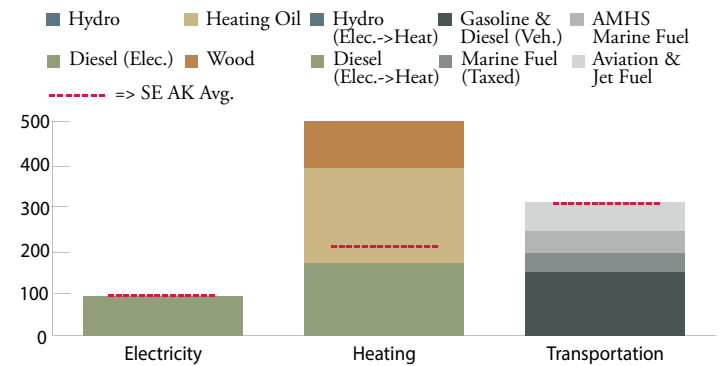
	Electricity	Heating	Transportation	Total
Hydro	-	-	-	-
Diesel (Electricity)	92,932	169,242	-	262,174
Heating Fuel Oil	-	221,662	-	221,662
Wood	-	110,332	-	110,332
Gasoline & Diesel (Vehicles)	-	-	147,637	147,637
Marine Fuel (Taxed)	-	-	46,400	46,400
AMHS Marine Fuel	-	-	48,809	48,809
Jet Fuel	-	-	68,676	68,676
Aviation Fuel	-	-	208	208
Total	92,932	501,235	311,731	905,899

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

The total local energy demand in Wrangell is comprised mostly of space heating fuels (501,235 MMBtu, 55 percent of the total), followed by transportation fuels (311,731 MMBtu, 34 percent of the total), and electricity (92,932 MMBtu, 10 percent of the total).

Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.

Figure 106: Wrangell Energy Demand by Fuel Type (MMBtu per Household)



Source: United States Census Bureau, 2012

Wrangell Electricity

Wrangell is part of the SEAPA Transmission Planning Region that includes Ketchikan, Saxman, Metlakatla, Petersburg, and Kake.

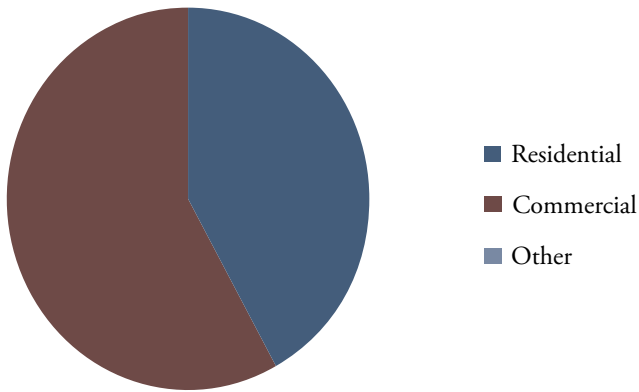
Electricity prices were 10.62 cents/kWh for customers in FY 2010; the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Wrangell’s electricity demand totaled 92,932 MMBtu for 1004 households (93 MMBtu per household) and a population of 2,369 (39 MMBtu per capita). Electricity demand per household is 3 percent less than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Wrangell cost approximately \$986,943 for the end-users; paid to Wrangell Municipal Light & Power.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Wrangell is the commercial sector with an electricity demand of 53,900 MMBtu (54 MMBtu per household) followed by the residential sector with an electricity demand of 39,033 MMBtu (39 MMBtu per household) and all other activities with an electricity demand of 0 MMBtu (0 MMBtu per household).

Figure 107: Wrangell Electricity Demand by End-Use



Wrangell Space Heating

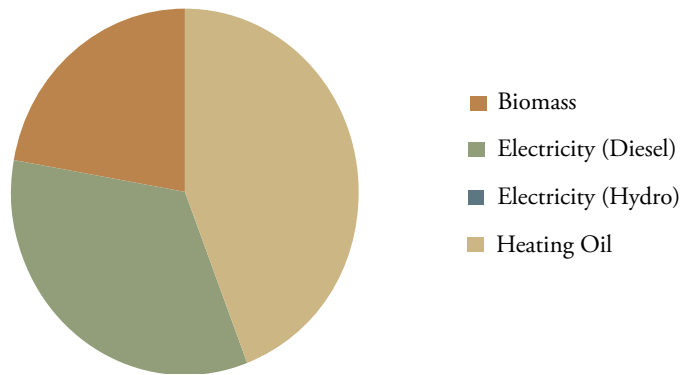
In 2010, heating fuel demand in Wrangell totaled 221,662 MMBtu (44 percent of space heating), electricity use for heating totaled 169,242 MMBtu (34 percent of space heating), and biomass totaled 110,332 MMBtu (22 percent of space heating).

Space heating demand per household in Wrangell is 140 percent higher than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Wrangell there were 57 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Heating fuel prices were \$3.41/gallon in 2012. Electricity prices were \$10.62/kWh in 2010.

Figure 108: Wrangell Space Heating Demand by Fuel Type

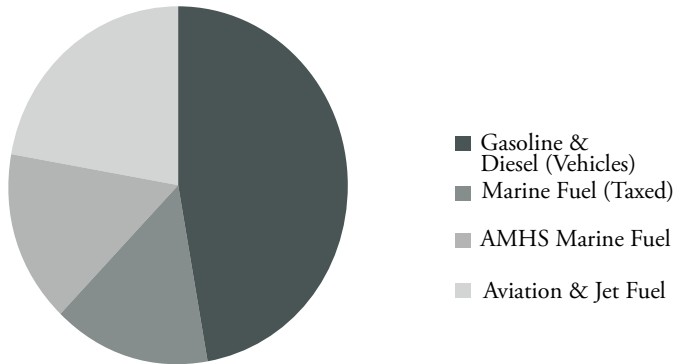


Wrangell Transportation

In 2010, Wrangell gasoline and road diesel demand totaled 147,637 MMBtu, jet fuel totaled 68,676 MMBtu, AMHS marine fuel totaled 48,809 MMBtu, marine diesel totaled 46,400 MMBtu, and aviation diesel totaled 208 MMBtu.

Transportation fuel demand per household is 1 percent higher than the Southeast Alaska regional average.

Figure 109: Wrangell Transportation Fuel Demand by Fuel Type



Yakutat City and Borough

YAKUTAT ELECTRICITY, SPACE HEATING, AND TRANSPORTATION

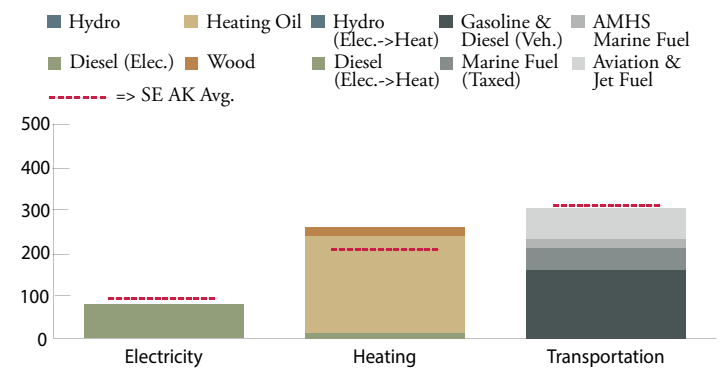
Yakutat is the sole community listed in Yakutat City and Borough listed in the DOLWD list of 42 communities in Southeast Alaska. The total local energy demand per household in Yakutat (642 MMBtu) is 5 percent more than the average household in Southeast Alaska.

The total local energy demand in Yakutat is comprised mostly of transportation fuels (78,872 MMBtu, 48 percent of the total), followed by space heating fuels (66,884 MMBtu, 40 percent of the total), and electricity (20,405 MMBtu, 12 percent of the total).

Table 38: Yakutat Energy Demand by Fuel Type (MMBtu)

	Electricity	Heating	Transportation	Total
Hydro	-	-	-	-
Diesel (Electricity)	20,405	3,357	-	23,762
Heating Fuel Oil	-	58,104	-	58,104
Wood	-	5,423	-	5,423
Gasoline & Diesel (Vehicles)	-	-	41,256	41,256
Marine Fuel (Taxed)	-	-	12,966	12,966
AMHS Marine Fuel	-	-	5,400	5,400
Jet Fuel	-	-	19,191	19,191
Aviation Fuel	-	-	58	58
Total	20,405	66,884	78,872	166,161

Figure 110: Yakutat Energy Demand by Fuel Type (MMBtu per Household)



Space heating is provided, in part, by electricity. The figure below provides the fuel demand and identifies the portion of electricity that is used for space heating.



Source: United States Census Bureau, 2012

Yakutat Electricity

Yakutat is part of the Northern Transmission Planning Region that also includes Gustavus.

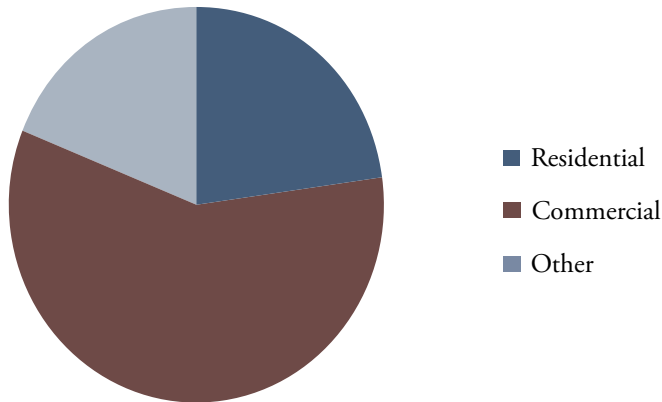
Electricity prices were 17.28 cents/kWh for customers in FY 2010; the regional average electricity price was 37 cents per kWh (Black and Veatch, 2012).

Yakutat's electricity demand totaled 20,405 MMBtu for 259 households (79 MMBtu per household) and a population of 662 (31 MMBtu per capita). Electricity demand per household is 18 percent less than the Southeast Alaska average of 96 MMBtu per household.

Using these demand and price values, electricity demand in Yakutat cost approximately \$352,601 for the end-users; paid to Yakutat Power.

Electricity demand data are available by three broad end-use categories: residential, commercial, and other. The largest user of electricity in Yakutat is the commercial sector with an electricity demand of 11,850 MMBtu (46 MMBtu per household) followed by the residential sector with an electricity demand of 4,701 MMBtu (18 MMBtu per household) and all other activities with an electricity demand of 3,854 MMBtu (15 MMBtu per household).

Figure 111: Yakutat Electricity Demand by End-Use



Yakutat Space Heating

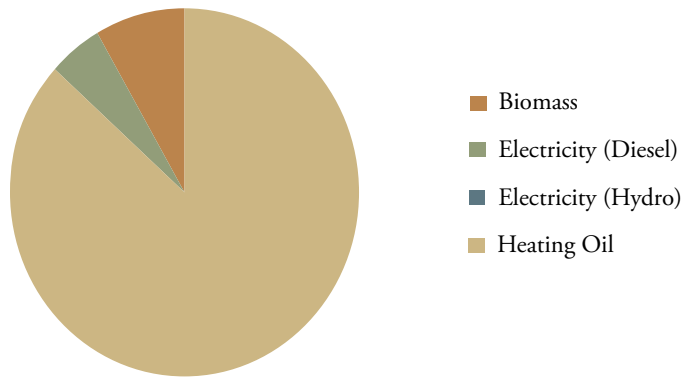
In 2010, heating fuel demand in Yakutat totaled 58,104 MMBtu (87 percent of space heating), biomass totaled 5,423 MMBtu (8 percent of space heating), and electricity use for heating totaled 3,357 MMBtu (5 percent of space heating).

Space heating demand per household in Yakutat is 24 percent higher than the Southeast Alaska regional average.

Wood energy is consumed using residential stoves and commercial or government boilers. In Yakutat there were 21 boilers installed from 1983 to 2012 in a wide range of facilities (Source: US Forest Service, 2013).

Heating fuel prices were \$4.99/gallon in 2012. Electricity prices were \$17.28/kWh in 2010.

Figure 112: Yakutat Space Heating Demand by Fuel Type

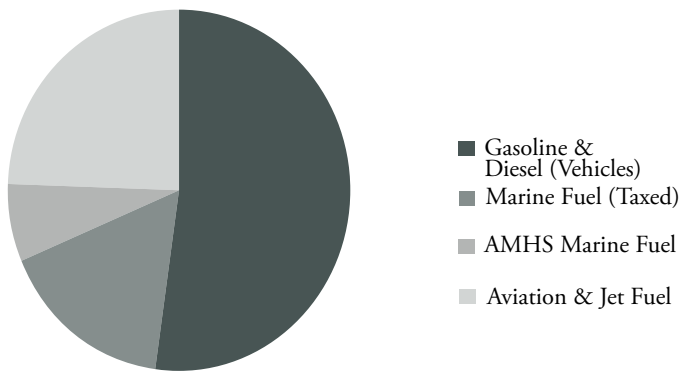


Yakutat Transportation

In 2010, Yakutat gasoline and road diesel demand totaled 41,256 MMBtu, jet fuel totaled 19,191 MMBtu, marine diesel totaled 12,966 MMBtu, AMHS marine fuel totaled 5,400 MMBtu, and aviation diesel totaled 58 MMBtu.

Transportation fuel demand per household is 1 percent lower than the Southeast Alaska regional average.

Figure 113: Yakutat Transportation Fuel Demand by Fuel Type



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Author

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Prepared for



