

Appendix A: Municipal Energy Use and Targets

I. RESIDENTIAL AND COMMERCIAL THERMAL (TABLES A & B)

Methodology for Residential Estimates

Vermont's regional planning commissions have been tasked with developing reasonable estimates for local consumption across the transportation, heating, and electric energy sectors. While these estimates use best available data, they should not be considered a unit-by-unit audit of energy use. Rather, they serve as a starting point for better understanding our region's current energy use patterns, the cost drivers, and what we need to do to achieve long-range energy goals. All energy data in our estimates are expressed in *British Thermal Units* (BTUs) and millions of BTUs (MMBTUs) in order to allow for comparison between different energy types.

According to the Department of Public Service, residences in New England use somewhere about 45,000 to 80,000 BTUs of heat energy per square foot annually, averaging statewide at about 110 MMBTUs per residence per year for space and water heating. Space heating is by far the biggest use, and older building stock can require significantly more energy to heat.

Here are the steps NVDA used to develop estimates for the Northeast Kingdom.

1: Determine total square footage of housing by tenure.

NVDA used Census Bureau data from the American Community Survey 5-Year Estimates 2011-2015 (ACS), as well as the American Housing Survey, New England Division (AHS) to determine the total square footage of housing stock for *owner-occupied* and *renter-occupied* units. (On average, renter occupied units tend to be smaller than owner-occupied units.) Total square footage of housing stock was determined using the average number of persons per household, multiplied by the median square footage per person, multiplied by the number of households.

Datum	Avg. # persons per household, owner occupied	X	Median square feet per person	X	Total households, owner-occupied	=	Total square feet
Source	ACS		AHS		ACS		
Example (Caledonia County)	2.54	X	772	X	9,047	=	17,740,081

2: Determine heating source as a percentage of all square footage.

We then applied primary heating fuels as a percentage of all housing units to determine total square footage that the fuel was being used to heat.

House heating fuel is categorized on the ACS questionnaire as follows in the box below:

Utility Gas: This category includes gas piped underground from a central system to serve the neighborhood. The only utility in Vermont that delivers gas in this manner (i.e. natural gas) is Vermont Gas, and its service area is well outside of our region. A small number of ACS respondents indicated that they heated with “utility gas.” It is most likely that they confused this source with bottled, tank or LP gas. We therefore made adjustments to account for this error.

Bottled, Tank, or LP Gas- This category includes liquid propane gas stored in bottles or tanks that are refilled or exchanged when empty. This is the second largest source of heat for renter-occupied homes, and third for owner-occupied.

Electricity -This category includes electricity that is generally supplied by means of above or underground electric power lines. Census data does not distinguish between types of electric heat (e.g. resistance vs. heat pumps).

Fuel Oil, Kerosene, etc. -This category includes fuel oil, kerosene, gasoline, alcohol, and other combustible liquids. This category (oil) is the leading source of heat in the region.

Coal or coke -This category includes coal or coke that is usually distributed by truck. Some households in our region use anthracite in stove, furnaces, and boilers.

Wood -This category includes purchased wood, wood cut by household members on their property or elsewhere, driftwood, sawmill or construction scraps, or the like. Wood is the second largest source of heat in the region for owner-occupied homes.

Solar Energy -This category includes heat provided by sunlight that is collected, stored, and actively distributed to most of the rooms.

Other Fuel -This category includes all other fuels not specified elsewhere. This category very likely consists of non-fossil fuel sources, but it is difficult to make further assumptions.

For example:

- Of the 9,047 owner-occupied homes in Caledonia County, 4,623 of those units are primarily heated with fuel oil, accounting for 51.1% of all owner-occupied units.
- 51.1%% of all owner-occupied square footage in Caledonia County is 9,065,148 sq. ft.

3: Account for the age of the housing stock.

The Northeast Kingdom has a significant number of pre-1940 housing units, which, according to the Department of Public Service, are likely to be “leaky” and poorly insulated with heat energy intensities closer to, if not greater than, 80,000 BTUs per square foot.

For example:

- Of the 9,047 owner-occupied units in Caledonia County, 2,730 units were built prior to 1940, accounting for 30.2% of all owner-occupied housing stock.
- Of the 9,065,148 sq. ft. of owner-occupied housing heated with fuel oil, 30.2% of that square footage (2,735,476 sq. ft.) will require 80,000 Btus per square foot. The remainder of the total square footage (6,329,672 sq. ft.) will require 45,000 Btu per square foot.

4: Convert to units of fuel and determine cost.

Finally we converted total BTUs into standard measurements of the respective fuel types using the conversion chart below and determined the total cost using the Vermont Fuel Price Report of November 2016. (Cost per “short ton” of anthracite coal came from Black Rock Coal in Montpelier.) Please note that ACS data does not account for wood pellet use, which is fairly prevalent in this region. If your municipality wishes to account for pellet use, we have provided conversion and cost information in the table below.

Fuel	Standard Unit	BTUs	Cost per unit
Utility gas	Cubic foot	1,025	\$1.41
Bottled tank or LP gas (propane)	Gallon	91,333	\$2.54
Electricity	Kilowatt hour	3,412	\$0.15

Fuel oil, kerosene, etc.	Gallon (oil)	139,000	\$2,23
Coal or coke	Short ton	19,590,000	\$370.00
Wood	Cord	20,000,000	\$227.00
Wood pellets	Ton	16,400,000	\$275.00

5: Determine energy use for seasonal units.

While the Northeast Kingdom has a fairly high number of vacation homes, there is no corresponding ACS data on heating sources. The Department of Public Service guidelines suggest that on average, seasonal homes account for about 5% of the thermal energy used in a year-round home. (For example, a seasonal camp may not have a central heating system, but it still may use propane to heat the water, and have a woodstove or fireplace for unseasonably cool nights.)

The percentage may be higher for communities with seasonal populations who use their properties throughout the winter. For estimation purposes, we assigned 5% to seasonal units in all communities except for Burke and Jay, which were assigned 10%. Here is the formula for calculating MMBTUs for seasonal units:

Number of seasonal units (ACS)	X	Average MMBTUs per Owner-Occupied Unit	X	5% (or 10%)	=	Total MMBTUs Seasonal
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Caveats:

- ACS data is not a hard count. Rather, it is based on random sampling over a multi-year period. Nevertheless, it is the best data available on residential heating. From this data we can confirm that fuel oil and wood are the most prevalent heating sources for residential units in the Northeast Kingdom, although wood is less likely to be used in renter-occupied units.
- ACS data identify only one primary source of heating. In reality many residences use two or more resources.

Methodology for Commercial Estimates

This table uses a worksheet created by the Department of Public Service, which uses data from the Vermont Department of Labor's Economic and Labor Market Information web site: <http://www.vtlni.info>. The worksheet determines the municipality's share of the regional commercial building stock and applies assumptions from by the Energy Information Institute's Survey of Commercial Uses. The estimate does not include industrial uses, which are highly variable.

II. TRANSPORTATION ESTIMATES (TABLE C)

This data was developed using the Department of Public Service's worksheet. The total number of vehicles comes from American Community Survey (ACS) 5-Year Estimates. Average annual VMTs is an NVDA estimate, which accounts for longer-than-average commutes and more incidental trips in the rural region. Total vehicle miles travelled assumes an average fuel economy of 22 miles per gallon. Registered EVs was determined by the Vermont Energy Investment Corporation and uses the Dept. of Public Service's average of 7,000 VMTs per EV annually.

III. ELECTRICITY ESTIMATES (TABLE D)

Efficiency Vermont has compiled three years of data, as provided by utilities serving the region.

IV. THERMAL EFFICIENCY TARGETS (TABLE E)

Targets for thermal efficiency of residential and commercial structures were determined using the Department of Public Service worksheet. Targets are based on a methodology developed by the regional Long-range Energy Alternatives Planning (LEAP) analysis. Residential targets use the mean MMBTUs for occupied households in the municipality, which were calculated by NVDA. Commercial targets use the data from the Vermont Department of Labor. Data in this table represent the percentages of municipal households and commercial establishments that will need to be weatherized in the target years. The targets are cumulative.

Targets assume a 6% increase in number of housing units/commercial establishments over each period. Weatherization projects are assumed to achieve an average of 25% reduction in MMBTUs for residential units and 20% for commercial establishments, although some weatherization projects can actually achieve deeper savings.

V. THERMAL FUEL SWITCHING, RESIDENTIAL & COMMERCIAL TARGETS (TABLE F)

Targets for thermal efficiency of residential and commercial structures were determined using the same Department of Public Service worksheet. Targets are based on a methodology developed by the regional Long-range Energy Alternatives Planning (LEAP) analysis and are cumulative. As with thermal efficiency targets, these targets assume a 6% increase in number of housing units/commercial establishments over each period.

VI. ELECTRICAL EFFICIENCY TARGETS (TABLE G)

Electricity use is expected to increase dramatically by 2050 so demand-side management and upgrades, such as hardwiring, lighting fixtures, and appliances is also an important part of this scenario, especially since electricity is replacing other fuel-burning thermal applications. Data in this table displays a target for increased electricity efficiency and conservation during the target years. These targets were developed using the Department of Public Service worksheet, which incorporates the regional LEAP analysis. The targets are cumulative. While an individual upgrade project, could result in anywhere from 50 kW to 1000 kW, we assumed an average of 400 kW. Actual utility customer counts were not available, so these targets were developed by multiplying the projected number of households by 1.5 (to account for the fact that there are generally more customers than households).

VII. FUEL SWITCHING, TRANSPORTATION TARGETS (TABLE H)

This table displays a target for switching from fossil fuel-based vehicles to biodiesel-powered vehicles. This target is calculated using Department of Public Service worksheet which incorporates the Regional LEAP data and the American Community Survey data (estimated number of vehicles per town). Projected number of vehicles in the area is estimated to be roughly commensurate with projections of population and households. Estimates assume a gradual increase in EV fuel economy from 3 kwh per mile to 4 kwh per mile by 2050. The targets are cumulative.

Albany

2015 Population estimates: **912**

Land (in acres) **24,947**

Population density: **23.4/square mile**

A. Residential Thermal Use

Total Households (HHs): **391**

Total owned: **347**, Avg. HH Size: **2.3**,
Percentage built before 1940: **32**

Total rented: 44, Avg. HH Size: **1.91**,
Percentage built before 1940: **34%**

Total vacant units for recreational or seasonal use: **67**

Total use for all occupied HHs: **59,739 MMBTUs**

Mean MMBTU per HH: **152**

Total use for all seasonal HHs: **535 MMBTUs**

Total cost for all occupied HHs: **\$503,235**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	20	21,850	gallons	5%	6%	0%	11%
Electricity	1	29,244	kWh	0%	0.3%	0%	1%
Fuel Oil	125	87,417	gallons	32%	34%	16%	39%
Wood	235	1,094	cords	60%	58%	77%	49%
Coal/Coke	---	-	tons	0%	0%	0%	0%
Other	10	-		3%	2%	7%	-

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	7
Average annual heating load per building:	1,270 MMBTUs
Estimated total heat energy consumption:	8,887 MMBTUs

C. Transportation Energy Use

Total vehicles:	735	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	10,290,000
Fossil Fuel:	425,632 gallons 51,612 MMBTUs	Ethanol:	42,095 gallons 3,566 MMBTUs	Total:	55,178 MMBTUs \$1,052,386
Registered EVs as of January 2017:		1 (8MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	613,887	2,095
Residential	2,786,156	9,506
Total	3,400,043	11,601
Average Residential Usage	5,780	19.72

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	414	439	466
% of households to be weatherized	16%	27%	27%
# of households to be weatherized	68	119	127
Estimated # of commercial establishments	7	8	8
% of commercial establishments to be weatherized	3%	5%	10%
# of commercial establishments to be weatherized	0	0	1

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	173	141	102
% of households with wood heat systems	42%	32%	22%
New efficient wood heat systems in commercial establishments	1	1	1
% commercial establishments with wood heat systems	20%	14%	8%
New heat pumps in residential units	51	108	137
% of households with heat pumps	12%	25%	29%
Estimated commercial establishments with heat pumps	0	1	1
% of commercial establishments with heat pumps	4%	7%	9%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	622	659	699
% of customers to upgrade electrical equipment	24%	36%	49%
# of customers to upgrade electrical equipment	149	234	343

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	831	935	1,052
Number of vehicles powered by electricity	87	278	599
% of vehicles powered by electricity	10%	30%	57%
Number of vehicles using bio-fuel blends	593	407	71
% of vehicles using bio-fuel blends	71%	44%	7%

Barnet

2015 Population estimates: **1,674**

Land (in acres)
27,840

Population density:
38.5/square mile

A. Residential Thermal Use

Total Households (HHs): **618**

Total owned: **500**, Avg. HH Size: **2.66**,
Percentage built before 1940: **33.2**

Total rented: **118**, Avg. HH Size: **2.54**,
Percentage built before 1940: **69.1**

Total vacant units for recreational or
seasonal use: **281**

Total use for all occupied HHs:
94,354 MMBTUs

Mean MMBTU per HH: **153**

Total use for all seasonal HHs:
2,310 MMBTUs

Total cost for all occupied HHs:
\$1,102,684

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	118	135,288	gallons	19.1%	15.2%	35.6%	31.2%
Electricity	3	102,231	KwH	0.5%	0.6%	0.0%	1.4%
Fuel Oil	260	206,499	gallons	42.1%	42.2%	41.5%	41.8%
Wood	220	1,235	cords	35.6%	38.6%	22.9%	25.4%
Coal/Coke	3	18	tons	0.5%	0.6%	0.0%	0.3%
Other		-		2.3%	2.8%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	18
Average annual heating load per building:	876 MMBTUs
Estimated total heat energy consumption:	15,762 MMBTUs

C. Transportation Energy Use

Total vehicles:	1,280	Avg. annual vehicle miles travelled (VMT's) per vehicle:	14,000	Total annual VMT's:	17,920,000
Fossil Fuel:	733,091 gallons 88,894 MMBTUs	Ethanol:	81,445 gallons 6,900 MMBTUs	Total:	95,794 MMBTUs \$1,832,727
Registered EVs as of January 2017:		4 (32 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	2,148,794	7,332
Residential	6,002,384	20,480
Total	8,151,178	27,812
Average Residential Usage	6,266	21.38

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	655	694	736
% of households to be weatherized	19%	31%	32%
# of households to be weatherized	125	218	233
Estimated # of commercial establishments	19	20	21
% of commercial establishments to be weatherized	5%	8%	14%
# of commercial establishments to be weatherized	1	2	3

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	320	262	190
% of households with wood heat systems	49%	38%	26%
New efficient wood heat systems in commercial establishments	3	3	5
% commercial establishments with wood heat systems	14%	17%	22%
New heat pumps in residential units	95	200	254
% of households with heat pumps	15%	29%	35%
Estimated commercial establishments with heat pumps	1	2	3
% of commercial establishments with heat pumps	5%	10%	13%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	983	1,042	1,104
% of customers to upgrade electrical equipment	28%	42%	57%
# of customers to upgrade electrical equipment	275	432	634

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	1,284	1,445	1,625
Number of vehicles powered by electricity	161	513	1,105
% of vehicles powered by electricity	11%	32%	60%
Number of vehicles using bio-fuel blends	1,096	753	131
% of vehicles using bio-fuel blends	76%	46%	7%

Barton

2015 Population estimates: **2,674**

Land (in acres) **28,388**

Population density: **60.3/square mile**

A. Residential Thermal Use

Total Households (HHs): **1,074**

Total owned: **803**, Avg. HH Size: **2.47**,
Percentage built before 1940: **39.9%**

Total rented: **272**, Avg. HH Size: **2.46**
Percentage built before 1940: **34.9%**

Total vacant units for recreational or seasonal use: **211**

Total use for all occupied HHs: **140,046 MMBTUs**

Mean MMBTU per HH: **130**

Total use for all seasonal HHs: **1,552 MMBTU**

Total cost for all occupied HHs: **\$1,891,290**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	144	154,301	gallons	13.4%	11.8%	18.0%	20.7%
Electricity	49	1,326,256	kWh	4.6%	3.2%	8.5%	10.5%
Fuel Oil	585	425,427	gallons	54.4%	53.5%	57.0%	50.2%
Wood	285	1,512	cords	26.5%	30.3%	15.4%	18.1%
Coal/Coke	4	23	tons	0.4%	0.5%	0.0%	0.4%
Other	7	--		0.7%	0.6%	0.7%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	78
Average annual heating load per building:	878 MMBTUs
Estimated total heat energy consumption:	68,505 MMBTUs

C. Transportation Energy Use

Total vehicles:	1,841	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	25,744,000
Fossil Fuel:	1,066,106 gallons 129,275 MMBTUs	Ethanol:	105,439 gallons 8,932 MMBTUs	Total:	138,207 MMBTUs \$2,635,977
Registered EVs as of January 2017: 9		(72 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	kWh	MMBTUs
Commercial & Industrial	10,350,698	35,317
Residential	14,602,190	49,823
Total	24,952,888	85,139
Average Residential Usage	5,834	19.91

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	1,138	1,207	1,279
% of households to be weatherized	22%	36%	36%
# of households to be weatherized	247	429	459
Estimated # of commercial establishments	83	88	93
% of commercial establishments to be weatherized	5%	8%	14%
# of commercial establishments to be weatherized	4	7	13

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	636	523	379
% of households with wood heat systems	56%	43%	30%
New efficient wood heat systems in commercial establishments	12	15	21
% commercial establishments with wood heat systems	14%	17%	22%
New heat pumps in residential units	189	399	506
% of households with heat pumps	17%	33%	40%
Estimated commercial establishments with heat pumps	5	8	12
% of commercial establishments with heat pumps	5%	10%	13%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	1,708	1,810	1,919
% of customers to upgrade electrical equipment	27%	40%	55%
# of customers to upgrade electrical equipment	462	726	1,064

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	2,081	2,341	2,634
Number of vehicles powered by electricity	270	861	1,854
% of vehicles powered by electricity	13%	37%	70%
Number of vehicles using bio-fuel blends	1,835	1,262	221
% of vehicles using bio-fuel blends	88%	54%	8%

Bloomfield

2015 Population estimates: **217**

Land (in acres) **25,771**

Population density: **5.4/square mile**

A. Residential Thermal Use

Total Households (HHs): **105**

Total owned: **87**, Avg. HH Size: **2.14**,
Percentage built before 1940: **28.7%**

Total rented: **18**, Avg. HH Size: **2.0**,
Percentage built before 1940: **61.1%**

Total vacant units for recreational or seasonal use: **87**

Total use for all occupied HHs: **12,715 MMBTUs**

Mean MMBTU per HH: **121**

Total use for all seasonal HHs: **550 MMBTUs**

Total cost for all occupied HHs: **\$139,658**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	10	9,959	gallons	9.5%	11.5%	0.0%	18.1%
Electricity	0	-	KwH	0.0%	0.0%	0.0%	0.0%
Fuel Oil	53	32,867	gallons	50.5%	49.4%	55.6%	52.5%
Wood	42	181	cords	40.0%	39.1%	44.4%	29.4%
Coal/Coke	0	-	tons	0.0%	0.0%	0.0%	0.0%
Other	0	-		0.0%	0.0%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	2
Average annual heating load per building:	531 MMBTUs
Estimated total heat energy consumption:	1,063 MMBTUs

C. Transportation Energy Use

Total vehicles:	191	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	2,674,000
Fossil Fuel:	110,606 gallons 13,412 MMBTUs	Ethanol:	10,939 gallons 927 MMBTUs	Total:	14,339 MMBTUs \$273,477
Registered EVs as of January 2017: 0		(0 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	N/A	N/A
Residential	709,599	2,421
Total	709,599	2,421
Average Residential Usage	5,069	17.29

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	111	118	125
% of households to be weatherized	18%	29%	29%
# of households to be weatherized	20	34	37
Estimated # of commercial establishments	2	2	2
% of commercial establishments to be weatherized	8%	13%	23%
# of commercial establishments to be weatherized	0	0	1

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	51	41	30
% of households with wood heat systems	45%	35%	24%
New efficient wood heat systems in commercial establishments	1	1	1
% commercial establishments with wood heat systems	24%	29%	38%
New heat pumps in residential units	15	32	40
% of households with heat pumps	13%	27%	32%
Estimated commercial establishments with heat pumps	0	0	1
% of commercial establishments with heat pumps	9%	16%	22%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	167	177	188
% of customers to upgrade electrical equipment	21%	31%	42%
# of customers to upgrade electrical equipment	35	54	80

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	215	242	272
Number of vehicles powered by electricity	20	64	139
% of vehicles powered by electricity	9%	27%	51%
Number of vehicles using bio-fuel blends	137	94	17
% of vehicles using bio-fuel blends	64%	39%	6%

Brighton

2015 Population estimates: **1,186**

Land (in acres): **34,780**

Population density: **21.8/square mile**

A. Residential Thermal Use

Total Households (HHs): **408**

Total owned: **272**, Avg. HH Size: **2.33**,
Percentage built before 1940: **43.8%**

Total rented: **142**, Avg. HH Size: **2.39**,
Percentage built before 1940: **37.3%**

Total vacant units for recreational or seasonal use: **448**

Total use for all occupied HHs: **50,491 MMBTUs**

Mean MMBTU per HH: **122**

Total use for all seasonal HHs: **3,270 MMBTUs**

Total cost for all occupied HHs: **\$1,513,288**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	42	46,403	gallons	10.1%	12.5%	5.6%	7.8%
Electricity	0	--	kWh	0.0%	0.0%	0.0%	0.0%
Fuel Oil	253	163,393	gallons	61.1%	49.3%	83.8%	24.1%
Wood	109	561	cords	26.3%	34.6%	10.6%	8.4%
Coal/Coke	4	22	tons	1.0%	1.5%	0.0%	0.5%
Other	0	--		0.0%	0.0%	0.0%	--

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	36
Average annual heating load per building:	863 MMBTUs
Estimated total heat energy consumption:	31,075 MMBTUs

C. Transportation Energy Use

Total vehicles:	665	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	9,310,000
Fossil Fuel:	385,095 gallons 46,695 MMBTUs	Ethanol:	38,086 gallons 3,226 MMBTUs	Total:	49,923 MMBTUs \$952,159
Registered EVs as of January 2017: 0		(0 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	2,209,532	7,539
Residential	3,750,970	12,798
Total	5,960,502	20,337
Average Residential Usage	4,377	14.93

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	432	458	486
% of households to be weatherized	20%	33%	34%
# of households to be weatherized	88	153	164
Estimated # of commercial establishments	38	40	43
% of commercial establishments to be weatherized	5%	8%	14%
# of commercial establishments to be weatherized	2	3	6

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	226	185	134
% of households with wood heat systems	52%	40%	28%
New efficient wood heat systems in commercial establishments	6	7	10
% commercial establishments with wood heat systems	15%	18%	23%
New heat pumps in residential units	67	142	180
% of households with heat pumps	15%	31%	37%
Estimated commercial establishments with heat pumps	2	4	6
% of commercial establishments with heat pumps	6%	10%	14%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	649	688	729
% of customers to upgrade electrical equipment	24%	36%	50%
# of customers to upgrade electrical equipment	157	246	361

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	738	830	934
Number of vehicles powered by electricity	92	292	629
% of vehicles powered by electricity	12%	35%	67%
Number of vehicles using bio-fuel blends	623	428	75
% of vehicles using bio-fuel blends	84%	52%	8%

Brownington

2015 Population estimates: **961**

Land (in acres): **18,149**

Population density: **33.9/square mile**

A. Residential Thermal Use

Total Households (HHs): **406**

Total owned: **363**, Avg. HH Size: **2.46**,
Percentage built before 1940: **16.8%**

Total rented: **43**, Avg. HH Size: **2.51**,
Percentage built before 1940: **0.0%**

Total vacant units for recreational or seasonal use: **104**

Total use for all occupied HHs: **52,056 MMBTUs**

Mean MMBTU per HH: **128**

Total use for all seasonal HHs: **698 MMBTUs**

Total cost for all occupied HHs: **\$548,970**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	26	26,170	gallons	6.4%	6.3%	7.0%	12.1%
Electricity	0	--	KwH	0.0%	0.0%	0.0%	0.0%
Fuel Oil	222	147,592	gallons	54.7%	54.8%	53.5%	60.0%
Wood	147	676	cords	36.2%	35.8%	39.5%	27.9%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	11	--		2.7%	3.0%	0.0%	--

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	9
Average annual heating load per building:	941 MMBTUs
Estimated total heat energy consumption:	8,471 MMBTUs

C. Transportation Energy Use

Total vehicles:	839	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	11,746,000
Fossil Fuel:	485,857 gallons 58,915 MMBTUs	Ethanol:	48,052 gallons 4,070 MMBTUs	Total:	62,985 MMBTUs \$1,201,295
Registered EVs as of January 2017: 0		(0 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	N/A	N/A
Residential	2,098,749	7,161
Total	2,098,749	7,161
Average Residential Usage	9,008	30.73

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	430	456	484
% of households to be weatherized	20%	34%	34%
# of households to be weatherized	88	153	164
Estimated # of commercial establishments	10	10	11
% of commercial establishments to be weatherized	4%	7%	13%
# of commercial establishments to be weatherized	0	1	1

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	192	156	113
% of households with wood heat systems	40%	31%	21%
New efficient wood heat systems in commercial establishments	1	2	2
% commercial establishments with wood heat systems	13%	16%	21%
New heat pumps in residential units	57	119	151
% of households with heat pumps	12%	23%	28%
Estimated commercial establishments with heat pumps	0	1	1
% of commercial establishments with heat pumps	5%	9%	12%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	646	684	725
% of customers to upgrade electrical equipment	22%	33%	46%
# of customers to upgrade electrical equipment	162	255	374

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	948	1,067	1,200
Number of vehicles powered by electricity	95	303	652
% of vehicles powered by electricity	10%	28%	54%
Number of vehicles using bio-fuel blends	64	53	42
% of vehicles using bio-fuel blends	68%	42%	6%

Brunswick

2015 Population estimates: **117**

Land (in acres): **16,104**

Population density: **4.6/square mile**

A. Residential Thermal Use

Total Households (HHs): **36**

Total owned: **32**, Avg. HH Size: **2.38**,
Percentage built before 1940: **21.9%**

Total rented: **4**, Avg. HH Size: **3.25**,
Percentage built before 1940: **50.0%**

Total vacant units for recreational or seasonal use: **45**

Total use for all occupied HHs: **4,469 MMBTUs**

Mean MMBTU per HH: **124**

Total use for all seasonal HHs: **279 MMBTUs**

Total cost for all occupied HHs: **\$51,563**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	0	--	gallons	0.0%	0.0%	0.0%	0.0%
Electricity	0	--	KwH	0.0%	0.0%	0.0%	0.0%
Fuel Oil	26	18,179	gallons	72.2%	71.9%	75.0%	78.6%
Wood	10	49	cords	27.8%	28.1%	25.0%	21.4%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	0	--		0.0%	0.0%	0.0%	--

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	n/a
Average annual heating load per building:	n/a MMBTUs
Estimated total heat energy consumption:	n/a MMBTUs

C. Transportation Energy Use

Total vehicles:	77	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	1,064,000
Fossil Fuel:	44,011 gallons 5,337 MMBTUs	Ethanol:	4,353 gallons 369 MMBTUs	Total:	5,705 MMBTUs \$108,000
Registered EVs as of January 2017: 1		(8 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	N/A	N/A
Residential	291,662	995
Total	291,662	995
Average Residential Usage	5,609	19.14

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	38	40	43
% of households to be weatherized	21%	34%	34%
# of households to be weatherized	8	14	15
Estimated # of commercial establishments	--	--	--
% of commercial establishments to be weatherized	--	--	--
# of commercial establishments to be weatherized	--	--	--

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	20	17	12
% of households with wood heat systems	53%	41%	28%
New efficient wood heat systems in commercial establishments	--	--	--
% commercial establishments with wood heat systems	--	--	--
New heat pumps in residential units	6	13	16
% of households with heat pumps	16%	31%	37%
Estimated commercial establishments with heat pumps	--	--	--
% of commercial establishments with heat pumps	--	--	--

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	57	61	64
% of customers to upgrade electrical equipment	25%	36%	50%
# of customers to upgrade electrical equipment	14	22	32

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	87	97	110
Number of vehicles powered by electricity	8	26	56
% of vehicles powered by electricity	9%	27%	51%
Number of vehicles using bio-fuel blends	56	38	7
% of vehicles using bio-fuel blends	64%	39%	6%

Burke

2015 Population estimates: **1,722**

Land (in acres): **21,573**

Population density: **51.1/square mile**

A. Residential Thermal Use

Total Households (HHs): **608**

Total owned: **479**, Avg. HH Size: **2.58**,
Percentage built before 1940: **29.9%**

Total rented: **152**, Avg. HH Size: **2.18**,
Percentage built before 1940: **26.3%**

Total vacant units for recreational or seasonal use: **400**

Total use for all occupied HHs: **81,380 MMBTUs**

Mean MMBTU per HH: **129**

Total use for all seasonal HHs: **5,995 MMBTUs**

Total cost for all occupied HHs: **\$992,434**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	88	93,899	gallons	13.9%	13.8%	14.5%	24.0%
Electricity	27	462,914	kWh	4.3%	0.0%	17.8%	7.0%
Fuel Oil	287	201,202	gallons	45.5%	44.7%	48.0%	45.2%
Wood	198	1,039	cords	31.4%	37.0%	13.8%	23.8%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0
Other	8	--		1.3%	1.7%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	45
Average annual heating load per building:	621 MMBTUs
Estimated total heat energy consumption:	27,961 MMBTUs

C. Transportation Energy Use

Total vehicles:	1,185	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	16,534,000
Fossil Fuel:	751,545 gallons 82,930 MMBTUs	Ethanol:	67,639 gallons 5,730 MMBTUs	Total:	88,660 MMBTUs \$1,690,977
Registered EVs as of January 2017: 4		(32 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	kWh	MMBTUs
Commercial & Industrial	9,256,201	31,582
Residential	10,305,482	35,162
Total	19,561,683	66,744
Average Residential Usage	9,986	34.07

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	641	680	721
% of households to be weatherized	23%	38%	38%
# of households to be weatherized	148	258	276
Estimated # of commercial establishments	48	51	54
% of commercial establishments to be weatherized	7%	11%	20%
# of commercial establishments to be weatherized	3	6	10

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	383	316	229
% of households with wood heat systems	60%	47%	32%
New efficient wood heat systems in commercial establishments	10	12	17
% commercial establishments with wood heat systems	20%	24%	32%
New heat pumps in residential units	114	241	306
% of households with heat pumps	18%	36%	43%
Estimated commercial establishments with heat pumps	4	7	10
% of commercial establishments with heat pumps	8%	14%	19%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	962	1,020	1,081
% of customers to upgrade electrical equipment	30%	44%	61%
# of customers to upgrade electrical equipment	286	449	658

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	1,333	1,500	1,687
Number of vehicles powered by electricity	167	533	1,147
% of vehicles powered by electricity	13%	36%	68%
Number of vehicles using bio-fuel blends	1,135	781	137
% of vehicles using bio-fuel blends	85%	52%	8%

Canaan

2015 Population estimates: **936**

Land (in acres): **21,174**

Population density: **28.3/square mile**

A. Residential Thermal Use

Total Households (HHs): **450**

Total owned: **362**, Avg. HH Size: **2.54**,
Percentage built before 1940: **30.9%**

Total rented: **88**, Avg. HH Size: **1.89**,
Percentage built before 1940: **38.6%**

Total vacant units for recreational or seasonal use: **136**

Total use for all occupied HHs: **60,321 MMBTUs**

Mean MMBTU per HH: **134**

Total use for all seasonal HHs: **1,016 MMBTUs**

Total cost for all occupied HHs: **\$644,324**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	17	20,377	gallons	3.8%	4.7%	0.0%	8.0%
Electricity	0	--	kWh	0.0%	0.0%	0.0%	0.0%
Fuel Oil	275	192,176	gallons	61.1%	58.8%	70.5%	66.5%
Wood	143	723	cords	31.8%	33.4%	25.0%	25.5%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	15	--		3.3%	3.0%	4.5%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	14
Average annual heating load per building:	1,098 MMBTUs
Estimated total heat energy consumption:	15,369 MMBTUs

C. Transportation Energy Use

Total vehicles:	840	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	11,760,000
Fossil Fuel:	486,436 gallons 58,985 MMBTUs	Ethanol:	48,109 gallons 4,075 MMBTUs	Total:	63,060 MMBTUs \$1,202,727
Registered EVs as of January 2017: 0		(0 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	kWh	MMBTUs
Commercial & Industrial	7,351,526	25,083
Residential	2,824,878	9,638
Total	10,176,404	34,722
Average Residential Usage	5,164	17.62

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	477	506	536
% of households to be weatherized	21%	35%	35%
# of households to be weatherized	101	175	187
Estimated # of commercial establishments	15	16	17
% of commercial establishments to be weatherized	4%	6%	11%
# of commercial establishments to be weatherized	1	1	2

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	259	213	154
% of households with wood heat systems	54%	42%	29%
New efficient wood heat systems in commercial establishments	2	2	3
% commercial establishments with wood heat systems	11%	14%	18%
New heat pumps in residential units	77	163	206
% of households with heat pumps	16%	32%	38%
Estimated commercial establishments with heat pumps	1	1	2
% of commercial establishments with heat pumps	4%	8%	11%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	716	758	804
% of customers to upgrade electrical equipment	27%	40%	56%
# of customers to upgrade electrical equipment	194	305	448

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	945	1,063	1,196
Number of vehicles powered by electricity	114	363	780
% of vehicles powered by electricity	12%	34%	65%
Number of vehicles using bio-fuel blends	772	531	93
% of vehicles using bio-fuel blends	82%	50%	8%

Charleston

2015 Population estimates: **997**

Land (in acres): **24,662**

Population density: **25.9/square mile**

A. Residential Thermal Use

Total Households (HHs): **460**

Total owned: **348**, Avg. HH Size: **2.23**,
Percentage built before 1940: **24.4%**

Total rented: **112**, Avg. HH Size: **2.39**,
Percentage built before 1940: **21.4%**

Total vacant units for recreational or seasonal use: **184**

Total use for all occupied HHs: **57,497 MMBTUs**

Mean MMBTU per HH: **125**

Total use for all seasonal HHs: **1,282 MMBTUs**

Total cost for all occupied HHs: **\$613,723**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	52	51,169	gallons	11%	14%	4%	21%
Electricity	11	200,238	kWh	2%	0%	10%	5%
Fuel Oil	186	109,510	gallons	40%	35%	57%	40%
Wood	211	923	cords	46%	51%	29%	34%
Coal/Coke	--	--	tons	0%	0%	0%	0%
Other	--	--	--	0%	0%	0%	--

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	13
Average annual heating load per building:	929 MMBTUs
Estimated total heat energy consumption:	12,075 MMBTUs

C. Transportation Energy Use

Total vehicles:	878	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	12,292,000
Fossil Fuel:	508,422 gallons 61,653 MMBTUs	Ethanol:	50,285 gallons 4,260 MMBTUs	Total:	65,913 MMBTUs \$1,257,136
Registered EVs as of January 2017: 1		(8 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	kWh	MMBTUs
Commercial & Industrial	1,139,007	3,886
Residential	2,916,899	9,952
Total	4,055,906	13,839
Average Residential Usage	5,392	18.40

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households			
% of households to be weatherized			
# of households to be weatherized			
Estimated # of commercial establishments			
% of commercial establishments to be weatherized			
# of commercial establishments to be weatherized			

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	222	182	132
% of households with wood heat systems	46%	35%	24%
New efficient wood heat systems in commercial establishments	2	2	3
% commercial establishments with wood heat systems	14%	16%	21%
New heat pumps in residential units	66	139	176
% of households with heat pumps	14%	27%	32%
Estimated commercial establishments with heat pumps	1	1	2
% of commercial establishments with heat pumps	5%	9%	13%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	731	775	822
% of customers to upgrade electrical equipment	21%	32%	44%
# of customers to upgrade electrical equipment	157	246	361

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	989	1,112	1,252
Number of vehicles powered by electricity	92	292	629
% of vehicles powered by electricity	9%	26%	50%
Number of vehicles using bio-fuel blends	623	428	75
% of vehicles using bio-fuel blends	63%	39%	6%

Concord

2015 Population estimates: **1,214**

Land (in acres): **34,209**

Population density: **22.7/square mile**

A. Residential Thermal Use

Total Households (HHs): **534**

Total owned: **434**, Avg. HH Size: **2.14**,
Percentage built before 1940: **22.6%**

Total rented: **103**, Avg. HH Size: **2.64**,
Percentage built before 1940: **42.7%**

Total vacant units for recreational or seasonal use: **281**

Total use for all occupied HHs: **61,323 MMBTUs**

Mean MMBTU per HH: **114**

Total use for all seasonal HHs: **1,658 MMBTUs**

Total cost for all occupied HHs: **\$1,061,358**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	49	46,593	gallons	9.1%	10.6%	2.9%	11.2%
Electricity	3	68,884	kWh	0.6%	0.0%	2.9%	1.0%
Fuel Oil	304	186,523	gallons	56.6%	53.7%	68.9%	39.2%
Wood	160	687	cords	29.8%	30.9%	25.2%	14.7%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	18	--	--	3.4%	4.1%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	16
Average annual heating load per building:	977 MMBTUs
Estimated total heat energy consumption:	15,636 MMBTUs

C. Transportation Energy Use

Total vehicles:	936	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	13,076,000
Fossil Fuel:	540,871 gallons 65,585 MMBTUs	Ethanol:	53,493 gallons 4,531 MMBTUs	Total:	70,117 MMBTUs \$1,337,318
Registered EVs as of January 2017: 2		(16 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	976,503	3,332
Residential	4,271,819	14,575
Total	5,248,321	17,907
Average Residential Usage	5,788	19.75

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	566	600	636
% of households to be weatherized	21%	35%	36%
# of households to be weatherized	121	211	226
Estimated # of commercial establishments	17	18	19
% of commercial establishments to be weatherized	1	1	2
# of commercial establishments to be weatherized	566	600	636

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	313	257	186
% of households with wood heat systems	55%	43%	29%
New efficient wood heat systems in commercial establishments	2	3	4
% commercial establishments with wood heat systems	93	196	249
New heat pumps in residential units	16%	33%	39%
% of households with heat pumps	1	2	2
Estimated commercial establishments with heat pumps	313	257	186
% of commercial establishments with heat pumps	55%	43%	29%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	849	900	954
% of customers to upgrade electrical equipment	24%	35%	49%
# of customers to upgrade electrical equipment	201	316	463

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	1,055	1,187	1,336
Number of vehicles powered by electricity	117	375	806
% of vehicles powered by electricity	11%	32%	60%
Number of vehicles using bio-fuel blends	798	549	96
% of vehicles using bio-fuel blends	76%	46%	7%

Coventry

2015 Population estimates: **1,049**

Land (in acres): **17,783**

Population density: **37.8/square mile**

A. Residential Thermal Use

Total Households (HHs): **413**

Total owned: **335**, Avg. HH Size: **2.69**,
Percentage built before 1940: **12.8%**

Total rented: **78**, Avg. HH Size: **2.28**,
Percentage built before 1940: **20.5%**

Total vacant units for recreational or seasonal use: **16**

Total use for all occupied HHs: **50,407 MMBTUs**

Mean MMBTU per HH: **122**

Total use for all seasonal HHs: **107 MMBTUs**

Total cost for all occupied HHs: **\$672,714**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	90	97,436	gallons	21.8%	24.5%	10.3%	36.8%
Electricity	0	--	kWh	0.0%	0.0%	0.0%	0.0%
Fuel Oil	205	134,847	gallons	49.6%	45.4%	67.9%	44.7%
Wood	114	549	cords	27.6%	29.0%	21.8%	18.5%
Coal/Coke	0	--	tons	20.0%	0.0%	0.0%	0.0%
Other	4	--	--	1.2%	1.2%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	12
Average annual heating load per building:	1,087 MMBTUs
Estimated total heat energy consumption:	13,045 MMBTUs

C. Transportation Energy Use

Total vehicles:	813	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	11,382,000
Fossil Fuel:	470,801 gallons 57,089 MMBTUs	Ethanol:	46,563 gallons 3,944 MMBTUs	Total:	61,033 MMBTUs \$1,164,068
Registered EVs as of January 2017: 1		(8 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	2,658,684	9,071
Residential	3,386,548	11,555
Total	6,045,232	20,626
Average Residential Usage	7,041	24.02

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	438	464	492
% of households to be weatherized	24%	40%	40%
# of households to be weatherized	107	186	199
Estimated # of commercial establishments	13	13	14
% of commercial establishments to be weatherized	0	1	2
# of commercial establishments to be weatherized	4%	6%	11%

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	277	229	166
% of households with wood heat systems	63%	49%	34%
New efficient wood heat systems in commercial establishments	1	2	3
% commercial establishments with wood heat systems	12%	14%	18%
New heat pumps in residential units	82	175	222
% of households with heat pumps	19%	38%	45%
Estimated commercial establishments with heat pumps	1	1	2
% of commercial establishments with heat pumps	4%	8%	11%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	657	696	738
% of customers to upgrade electrical equipment	29%	42%	59%
# of customers to upgrade electrical equipment	188	295	432

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	916	1,030	1,159
Number of vehicles powered by electricity	110	350	753
% of vehicles powered by electricity	12%	34%	65%
Number of vehicles using bio-fuel blends	745	512	90
% of vehicles using bio-fuel blends	81%	50%	8%

Craftsbury

2015 Population estimates: **1,168**

Land (in acres): **25,316**

Population density: **29.7/square mile**

A. Residential Thermal Use

Total Households (HHs): **456**

Total owned: **399**, Avg. HH Size: **2.37**,
Percentage built before 1940: **30%**

Total rented: **57**, Avg. HH Size: **3.04**,
Percentage built before 1940: **44%**

Total vacant units for recreational or seasonal use: **233**

Total use for all occupied HHs: **67,976 MMBTUs**

Mean MMBTU per HH: **149**

Total use for all seasonal HHs: **1,789 MMBTUs**

Total cost for all occupied HHs: **\$708,484**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	55	60,197	gallons	12%	12%	16%	22%
Electricity	6	178,934	kWh	1%	1.5%	0%	4%
Fuel Oil	175	125,668	gallons	38%	36%	54%	40%
Wood	217	1,095	cords	48%	50%	30%	35%
Coal/Coke	--	--	tons	0%	0%	0%	0%
Other	3	--	--	1%	1%	0%	--

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	25
Average annual heating load per building:	759 MMBTUs
Estimated total heat energy consumption:	18,975 MMBTUs

C. Transportation Energy Use

Total vehicles:	906	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	12,628,000
Fossil Fuel:	524,656 gallons 63,619 MMBTUs	Ethanol:	51,889 gallons 4,389 MMBTUs	Total:	68,015 MMBTUs \$1,291,500
Registered EVs as of January 2017: 3		(24 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	518,525	1,769
Residential	1,819,477	6,208
Total	2,338,002	7,977
Average Residential Usage	3,198	10.91

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	483	512	543
% of households to be weatherized	20%	33%	33%
# of households to be weatherized	96	168	179
Estimated # of commercial establishments	30	31	33
% of commercial establishments to be weatherized	6%	10%	18%
# of commercial establishments to be weatherized	2	3	6

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	247	203	147
% of households with wood heat systems	51%	40%	27%
New efficient wood heat systems in commercial establishments	5	7	10
% commercial establishments with wood heat systems	18%	22%	29%
New heat pumps in residential units	73	155	196
% of households with heat pumps	15%	30%	36%
Estimated commercial establishments with heat pumps	2	4	6
% of commercial establishments with heat pumps	18%	22%	29%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	725	769	815
% of customers to upgrade electrical equipment	29%	42%	58%
# of customers to upgrade electrical equipment	207	325	476

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	1,019	1,147	1,290
Number of vehicles powered by electricity	121	386	830
% of vehicles powered by electricity	12%	34%	64%
Number of vehicles using bio-fuel blends	821	565	99
% of vehicles using bio-fuel blends	81%	49%	8%

Danville

2015 Population estimates: **2,203**

Land (in acres): **39,051**

Population density: **36.1/square mile**

A. Residential Thermal Use

Total Households (HHs): **891**

Total owned: **811**, Avg. HH Size: **2.46**,
Percentage built before 1940: **31.8%**

Total rented: **80**, Avg. HH Size: **2.55**,
Percentage built before 1940: **42.5%**

Total vacant units for recreational or seasonal use: **304**

Total use for all occupied HHs: **132,539 MMBTUs**

Mean MMBTU per HH: **149**

Total use for all seasonal HHs: **2,364 MMBTUs**

Total cost for all occupied HHs: **\$1,463,350**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	93	102,097	gallons	10.4%	9.1%	23.8%	17.7%
Electricity	23	664,058	kWh	2.6%	21.0%	7.5%	6.8%
Fuel Oil	398	294,742	gallons	44.7%	42.9%	62.5%	44.9%
Wood	371	1,970	cords	41.6%	45.1%	6.3%	30.6%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	6	--		0.7%	0.7%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	44
Average annual heating load per building:	786 MMBTUs
Estimated total heat energy consumption:	34,595 MMBTUs

C. Transportation Energy Use

Total vehicles:	1,842	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	25,690,000
Fossil Fuel:	1,167,727 gallons 128,854 MMBTUs	Ethanol:	105,095 gallons 8,903 MMBTUs	Total:	137,756 MMBTUs \$2,627,386
Registered EVs as of January 2017: 7		(56 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	3,450,910	11,775
Residential	7,965,301	27,178
Total	11,416,211	38,952
Average Residential Usage	6,455	22.02

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	944	1,001	1,061
% of households to be weatherized	19%	30%	31%
# of households to be weatherized	175	305	326
Estimated # of commercial establishments	47	49	52
% of commercial establishments to be weatherized	5%	9%	15%
# of commercial establishments to be weatherized	2	4	8

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	448	366	265
% of households with wood heat systems	47%	37%	25%
New efficient wood heat systems in commercial establishments	7	10	13
% commercial establishments with wood heat systems	16%	19%	25%
New heat pumps in residential units	133	279	355
% of households with heat pumps	14%	28%	33%
Estimated commercial establishments with heat pumps	3	5	8
% of commercial establishments with heat pumps	6%	11%	15%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	1,417	1,502	1,592
% of customers to upgrade electrical equipment	26%	39%	54%
# of customers to upgrade electrical equipment	375	590	864

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	2,072	2,331	2,623
Number of vehicles powered by electricity	219	700	1,506
% of vehicles powered by electricity	11%	30%	57%
Number of vehicles using bio-fuel blends	1,491	1,025	179
% of vehicles using bio-fuel blends	72%	44%	7%

Derby

2015 Population estimates: **4,464**

Land (in acres): **36,751**

Population density: **77.7/square mile**

A. Residential Thermal Use

Total Households (HHs): **1,981**

Total owned: **1,563**, Avg. HH Size: **2.34**,
Percentage built before 1940: **20.8%**

Total rented: **434**, Avg. HH Size: **1.95**,
Percentage built before 1940: **51.6%**

Total vacant units for recreational or seasonal use: **339**

Total use for all occupied HHs: **214,946 MMBTUs**

Mean MMBTU per HH: **108**

Total use for all seasonal HHs: **2,043 MMBTUs**

Total cost for all occupied HHs: **\$2,771,337**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	185	161,522	gallons	9%	7%	19%	15%
Electricity	22	549,899	kWh	1%	1%	1%	3%
Fuel Oil	1,281	796,196	gallons	64%	62%	71%	64%
Wood	416	1,951	cords	21%	26%	2%	16%
Coal/Coke	43	163	tons	2%	1%	6%	2%
Other	34	--	--	2%	2%	--	--

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	117
Average annual heating load per building:	760 MMBTUs
Estimated total heat energy consumption:	88,876 MMBTUs

C. Transportation Energy Use

Total vehicles:	6,413	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	89,782,000
Fossil Fuel:	3,713,710 gallons 450,319 MMBTUs	Ethanol:	367,290 gallons 31,113 MMBTUs	Total:	481,432 MMBTUs \$9,182,250
Registered EVs as of January 2017: 7		56 (MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	25,055,454	85,489
Residential	14,528,516	49,571
Total	39,583,970	135,061
Average Residential Usage	5,976	20.39

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	2,100	2,226	2,359
% of households to be weatherized	23%	38%	38%
# of households to be weatherized	487	848	907
Estimated # of commercial establishments	124	131	139
% of commercial establishments to be weatherized	5%	9%	16%
# of commercial establishments to be weatherized	7	12	22

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	1,261	1,041	754
% of households with wood heat systems	60%	47%	32%
New efficient wood heat systems in commercial establishments	21	26	36
% commercial establishments with wood heat systems	17%	20%	26%
New heat pumps in residential units	374	794	1,008
% of households with heat pumps	18%	36%	43%
Estimated commercial establishments with heat pumps	8	15	22
% of commercial establishments with heat pumps	6%	11%	16%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	3,150	3,339	3,539
% of customers to upgrade electrical equipment	24%	36%	50%
# of customers to upgrade electrical equipment	762	1,197	1,754

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	7,223	8,125	9,141
Number of vehicles powered by electricity	445	1,421	3,057
% of vehicles powered by electricity	6%	17%	33%
Number of vehicles using bio-fuel blends	3,026	2,081	364
% of vehicles using bio-fuel blends	42%	26%	4%

East Haven

2015 Population estimates: **288**

Land (in acres): **23,870**

Population density: **7.7/square mile**

A. Residential Thermal Use

Total Households (HHs): **116**

Total owned: **113**, Avg. HH Size: **2.3**,
Percentage built before 1940: **11.5%**

Total rented: **9**, Avg. HH Size: **2.44**,
Percentage built before 1940: **66.7%**

Total vacant units for recreational or seasonal use: **28**

Total use for all occupied HHs: **15,124 MMBTUs**

Mean MMBTU per HH: **124**

Total use for all seasonal HHs: **182 MMBTUs**

Total cost for all occupied HHs: **\$392,601**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	14	13,344	gallons	11.5%	12.4%	0.0%	8.6%
Electricity	0	--	kWh	0.0%	0.0%	0.0%	0.0%
Fuel Oil	46	28,646	gallons	37.7%	36.3%	55.6%	16.3%
Wood	56	244	cords	45.9%	49.6%	0.0%	14.1%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	0	--	--	0.0%	0.0%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	5
Average annual heating load per building:	511 MMBTUs
Estimated total heat energy consumption:	2,554 MMBTUs

C. Transportation Energy Use

Total vehicles:	218	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	3,038,000
Fossil Fuel:	125,663 gallons 15,238 MMBTUs	Ethanol:	12,428 gallons 1,053 MMBTUs	Total:	16,291 MMBTUs \$310,705
Registered EVs as of January 2017: 1		(8 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	N/A	N/A
Residential	836,038	2,853
Total	836,038	2,853
Average Residential Usage	6,147	20.97

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	123	130	138
% of households to be weatherized	24%	40%	40%
# of households to be weatherized	30	52	56
Estimated # of commercial establishments	5	6	6
% of commercial establishments to be weatherized	0	1	1
# of commercial establishments to be weatherized	5%	8%	14%

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	78	65	47
% of households with wood heat systems	63%	50%	34%
New efficient wood heat systems in commercial establishments	1	2	2
% commercial establishments with wood heat systems	25%	30%	39%
New heat pumps in residential units	23	49	63
% of households with heat pumps	19%	38%	45%
Estimated commercial establishments with heat pumps	1	1	1
% of commercial establishments with heat pumps	9%	17%	23%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	184	196	207
% of customers to upgrade electrical equipment	31%	45%	63%
# of customers to upgrade electrical equipment	56	89	130

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	249	280	315
Number of vehicles powered by electricity	33	105	227
% of vehicles powered by electricity	13%	38%	72%
Number of vehicles using bio-fuel blends	224	154	27
% of vehicles using bio-fuel blends	90%	55%	9%

Glover

2015 Population estimates: **1,089**

Land (in acres): **24,659**

Population density: **28.3/square mile**

A. Residential Thermal Use

Total Households (HHs): **473**

Total owned: **396**, Avg. HH Size: **2.21**,
Percentage built before 1940: **31.6%**

Total rented: **77**, Avg. HH Size: **1.29**,
Percentage built before 1940: **42.9%**

Total vacant units for recreational or seasonal use: **287**

Total use for all occupied HHs: **64,017 MMBTUs**

Mean MMBTU per HH: **135**

Total use for all seasonal HHs: **2,180 MMBTUs**

Total cost for all occupied HHs: **\$619,248**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	43	43,138	gallons	9%	10%	4%	18%
Electricity	11	308,286	kWh	2%	2.8%	0%	7%
Fuel Oil	159	88,768	gallons	34%	28%	65%	32%
Wood	254	1,146	cords	54%	58%	31%	42%
Coal/Coke	3	15	tons	1%	1%	0%	1%
Other	3	--	--	1%	1%	0%	--

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	12
Average annual heating load per building:	911 MMBTUs
Estimated total heat energy consumption:	10,936 MMBTUs

C. Transportation Energy Use

Total vehicles:	798	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	11,172,000
Fossil Fuel:	462,115 gallons 56,036 MMBTUs	Ethanol:	45,704 gallons 3,872 MMBTUs	Total:	59,907 MMBTUs \$1,142,591
Registered EVs as of January 2017: 3		(24 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	1,606,873	5,483
Residential	4,219,566	14,397
Total	5,826,439	19,880
Average Residential Usage	5,844	19.94

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	501	531	563
% of households to be weatherized	18%	30%	30%
# of households to be weatherized	92	160	171
Estimated # of commercial establishments	13	13	14
% of commercial establishments to be weatherized	5%	7%	13%
# of commercial establishments to be weatherized	1	1	2

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	235	192	139
% of households with wood heat systems	47%	36%	25%
New efficient wood heat systems in commercial establishments	2	2	3
% commercial establishments with wood heat systems	14%	17%	22%
New heat pumps in residential units	70	146	186
% of households with heat pumps	14%	28%	33%
Estimated commercial establishments with heat pumps	1	1	2
% of commercial establishments with heat pumps	5%	9%	13%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	752	797	845
% of customers to upgrade electrical equipment	24%	35%	49%
# of customers to upgrade electrical equipment	179	281	412

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	901	1,014	1,140
Number of vehicles powered by electricity	105	334	719
% of vehicles powered by electricity	12%	33%	63%
Number of vehicles using bio-fuel blends	711	489	86
% of vehicles using bio-fuel blends	79%	48%	7%

Granby

2015 Population estimates: **85**

Land (in acres):
24,843

Population density:
2.2/square mile

A. Residential Thermal Use

Total Households (HHs): **39**

Total owned: **36**, Avg. HH Size: **2.28**,
Percentage built before 1940: **5.6%**

Total rented: **4**, Avg. HH Size: **3.25**,
Percentage built before 1940: **100%**

Total vacant units for recreational or
seasonal use: **58**

Total use for all occupied HHs:
5,822 MMBTUs

Mean MMBTU per HH: **146**

Total use for all seasonal HHs:
386 MMBTUs

Total cost for all occupied HHs:
\$163,934

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	2	1,809	gallons	5.0%	5.6%	0.0%	2.8%
Electricity	2	48,435	kWh	5.0%	5.6%	0.0%	4.4%
Fuel Oil	9	53,350	gallons	22.5%	25.0%	0.0%	7.3%
Wood	26	117	cords	65.0%	61.1%	100.0%	16.2%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	0	--	--	0.0%	0.0%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	2
Average annual heating load per building:	887 MMBTUs
Estimated total heat energy consumption:	1,775 MMBTUs

C. Transportation Energy Use

Total vehicles:	40	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	560,000
Fossil Fuel:	23,164 gallons 2,809 MMBTUs	Ethanol:	2,291 gallons 194 MMBTUs	Total:	3,003 MMBTUs \$57,273
Registered EVs as of January 2017: 0		(0 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	N/A	N/A
Residential	251,680	859
Total	251,680	859
Average Residential Usage	4,576	15.61

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	41	44	46
% of households to be weatherized	16%	26%	26%
# of households to be weatherized	7	11	12
Estimated # of commercial establishments	2	2	2
% of commercial establishments to be weatherized	5%	8%	14%
# of commercial establishments to be weatherized	0	0	0

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	17	14	10
% of households with wood heat systems	41%	31%	21%
New efficient wood heat systems in commercial establishments	0	0	0
% commercial establishments with wood heat systems	0	0	0
New heat pumps in residential units	5	10	13
% of households with heat pumps	12%	24%	28%
Estimated commercial establishments with heat pumps	0	0	0
% of commercial establishments with heat pumps	0	0	0

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	62	66	70
% of customers to upgrade electrical equipment	23%	34%	47%
# of customers to upgrade electrical equipment	14	22	33

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	45	51	57
Number of vehicles powered by electricity	8	26	57
% of vehicles powered by electricity	18%	52%	100%
Number of vehicles using bio-fuel blends	56	39	7
% of vehicles using bio-fuel blends	125%	77%	12%

Greensboro

2015 Population estimates: **742**

Land (in acres): **25,311**

Population density: **18.8/square mile**

A. Residential Thermal Use

Total Households (HHs): **322**

Total owned: **281**, Avg. HH Size: **2.29**,
Percentage built before 1940: **30.6%**

Total rented: **41**, Avg. HH Size: **2.32**,
Percentage built before 1940: **56.1%**

Total vacant units for recreational or seasonal use: **488**

Total use for all occupied HHs: **41,358 MMBTUs**

Mean MMBTU per HH: **128**

Total use for all seasonal HHs: **3,301 MMBTUs**

Total cost for all occupied HHs: **\$519,484**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	54	56,638	gallons	16.8%	17.1%	14.6%	27.7%
Electricity	6	158,974	kWh	1.9%	1.4%	4.9%	4.6%
Fuel Oil	151	101,932	gallons	46.9%	43.4%	70.7%	43.8%
Wood	109	532	cords	33.9%	37.4%	9.8%	23.2%
Coal/Coke	2	10	tons	0.6%	0.7%	0.0%	0.7%
Other	0	--	--	0.0%	0.0%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	27
Average annual heating load per building:	784 MMBTUs
Estimated total heat energy consumption:	21,163 MMBTUs

C. Transportation Energy Use

Total vehicles:	618	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	8,652,000
Fossil Fuel:	357,878 gallons 43,396 MMBTUs	Ethanol:	33,395 gallons 2,998 MMBTUs	Total:	36,394 MMBTUs \$884,864
Registered EVs as of January 2017: 2		(16 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	890,481	3,038
Residential	1,511,728	5,158
Total	2,402,209	8,196
Average Residential Usage	3,475	11.86

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	341	362	384
% of households to be weatherized	19%	31%	32%
# of households to be weatherized	65	114	121
Estimated # of commercial establishments	29	30	32
% of commercial establishments to be weatherized	5%	9%	15%
# of commercial establishments to be weatherized	2	3	5

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	167	137	99
% of households with wood heat systems	49%	38%	26%
New efficient wood heat systems in commercial establishments	5	6	8
% commercial establishments with wood heat systems	16%	19%	25%
New heat pumps in residential units	50	104	132
% of households with heat pumps	15%	29%	35%
Estimated commercial establishments with heat pumps	2	3	5
% of commercial establishments with heat pumps	6%	11%	15%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	512	543	575
% of customers to upgrade electrical equipment	24%	35%	48%
# of customers to upgrade electrical equipment	121	190	278

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	698	785	883
Number of vehicles powered by electricity	71	225	485
% of vehicles powered by electricity	10%	29%	55%
Number of vehicles using bio-fuel blends	480	330	58
% of vehicles using bio-fuel blends	69%	42%	7%

Groton

2015 Population estimates: **1,005**

Land (in acres): **35,227**

Population density: **18.3/square mile**

A. Residential Thermal Use

Total Households (HHs): **380**

Total owned: **314**, Avg. HH Size: **2.93**,
Percentage built before 1940: **B**

Total rented: **66**, Avg. HH Size: **1.61**,
Percentage built before 1940: **33.3%**

Total vacant units for recreational or seasonal use: **279**

Total use for all occupied HHs: **61,288 MMBTUs**

Mean MMBTU per HH: **161**

Total use for all seasonal HHs: **2,564 MMBTUs**

Total cost for all occupied HHs: **\$739,819**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	70	98,308	gallons	18.4%	21.0%	6.1%	33.8%
Electricity	4	52,943	kWh	1.1%	0.0%	6.1%	1.1%
Fuel Oil	161	126,148	gallons	42.4%	36.9%	68.2%	38.0%
Wood	132	823	cords	34.7%	37.9%	19.7%	25.2%
Coal/Coke	13	88	tons	3.4%	4.1%	0.0%	1.9%
Other	0	--		0.0%	0.0%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	16
Average annual heating load per building:	580 MMBTUs
Estimated total heat energy consumption:	9,285 MMBTUs

C. Transportation Energy Use

Total vehicles:	772	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	10,794,000
Fossil Fuel:	446,479 gallons 54,140 MMBTUs	Ethanol:	44,157 gallons 3,741 MMBTUs	Total:	57,880 MMBTUs \$1,103,932
Registered EVs as of January 2017: 1		(8 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	541,021	1,846
Residential	3,179,617	10,849
Total	3,720,637	12,695
Average Residential Usage	5,128	17.50

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	403	427	453
% of households to be weatherized	18%	30%	30%
# of households to be weatherized	73	127	136
Estimated # of commercial establishments	17	18	19
% of commercial establishments to be weatherized	7%	12%	21%
# of commercial establishments to be weatherized	1	2	4

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	186	152	110
% of households with wood heat systems	46%	36%	24%
New efficient wood heat systems in commercial establishments	4	5	7
% commercial establishments with wood heat systems	22%	26%	34%
New heat pumps in residential units	55	116	147
% of households with heat pumps	14%	27%	33%
Estimated commercial establishments with heat pumps	1	3	4
% of commercial establishments with heat pumps	8%	15%	21%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	604	640	679
% of customers to upgrade electrical equipment	28%	41%	57%
# of customers to upgrade electrical equipment	169	266	390

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	869	977	1,099
Number of vehicles powered by electricity	99	316	679
% of vehicles powered by electricity	11%	32%	62%
Number of vehicles using bio-fuel blends	672	462	81
% of vehicles using bio-fuel blends	77%	47%	7%

Guildhall

2015 Population estimates: **256**

Land (in acres): **21,107**

Population density: **7.8/square mile**

A. Residential Thermal Use

Total Households (HHs): **109**

Total owned: **96**, Avg. HH Size: **1.96**,
Percentage built before 1940: **27.1%**

Total rented: **13**, Avg. HH Size: **2.15**,
Percentage built before 1940: **46.2%**

Total vacant units for recreational or seasonal use: **56**

Total use for all occupied HHs: **12,335 MMBTUs**

Mean MMBTU per HH: **113**

Total use for all seasonal HHs: **329 MMBTUs**

Total cost for all occupied HHs: **\$131,167**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	6	5,225	gallons	5.5%	5.2%	7.7%	10.1%
Electricity	2	48,320	kWh	1.8%	2.1%	0.0%	5.5%
Fuel Oil	57	32,680	gallons	52.3%	50.0%	69.2%	55.6%
Wood	41	166	cords	37.6%	39.6%	23.1%	28.8%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	3	--	--	2.8%	3.1%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	4
Average annual heating load per building:	1,669 MMBTUs
Estimated total heat energy consumption:	6,675 MMBTUs

C. Transportation Energy Use

Total vehicles:	195	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	2,730,000
Fossil Fuel:	112,923 gallons 13,693 MMBTUs	Ethanol:	11,168 gallons 946 MMBTUs	Total:	14,639 MMBTUs \$279,205
Registered EVs as of January 2017:		(MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	286,282	977
Residential	848,330	2,895
Total	1,134,611	3,871
Average Residential Usage	6,576	22.44

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	116	122	130
% of households to be weatherized	19%	30%	31%
# of households to be weatherized	21	37	40
Estimated # of commercial establishments	4	4	5
% of commercial establishments to be weatherized	2%	4%	7%
# of commercial establishments to be weatherized	0	0	0

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	55	45	32
% of households with wood heat systems	47%	37%	25%
New efficient wood heat systems in commercial establishments	0	0	1
% commercial establishments with wood heat systems	16	34	43
New heat pumps in residential units	14%	28%	33%
% of households with heat pumps	0	0	0
Estimated commercial establishments with heat pumps	55	45	32
% of commercial establishments with heat pumps	47%	37%	25%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	173	184	195
% of customers to upgrade electrical equipment	20%	30%	41%
# of customers to upgrade electrical equipment	35	55	80

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	219	247	278
Number of vehicles powered by electricity	20	65	140
% of vehicles powered by electricity	9%	26%	50%
Number of vehicles using bio-fuel blends	139	95	17
% of vehicles using bio-fuel blends	63%	39%	6%

Hardwick

2015 Population estimates: **2,937**

Land (in acres): **24,741**

Population density: **76/square mile**

A. Residential Thermal Use

Total Households (HHs): **1,180**

Total owned: **803**, Avg. HH Size: **2.37**,
Percentage built before 1940: **41.6%**

Total rented: **377**, Avg. HH Size: **2.66**,
Percentage built before 1940: **31.6%**

Total vacant units for recreational or seasonal use: **89**

Total use for all occupied HHs: **146,373 MMBTUs**

Mean MMBTU per HH: **124**

Total use for all seasonal HHs: **647 MMBTUs**

Total cost for all occupied HHs: **\$2,149,671**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	261	274,431	gallons	22.1%	20.5%	25.5%	32.4%
Electricity	72	1,557,286	KwH	6.1%	0.0%	19.1%	10.9%
Fuel Oil	554	388,619	gallons	46.9%	46.1%	48.8%	40.3%
Wood	293	1,552	cords	24.8%	33.4%	6.6%	16.4%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	0	--		0.0%	0.0%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	98
Average annual heating load per building:	712 MMBTUs
Estimated total heat energy consumption:	69,817 MMBTUs

C. Transportation Energy Use

Total vehicles:	2,048	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	28,322,000
Fossil Fuel:	1,287,364 gallons 142,055 MMBTUs	Ethanol:	115,863 gallons 9,815 MMBTUs	Total:	151,870 MMBTUs \$2,896,568
Registered EVs as of January 2017:25		(199 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	2,660,839	9,079
Residential	4,095,309	13,973
Total	6,756,148	23,052
Average Residential Usage	2,938	10.02

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	1,251	1,326	1,405
% of households to be weatherized	22%	37%	37%
# of households to be weatherized	278	484	518
Estimated # of commercial establishments	104	110	117
% of commercial establishments to be weatherized	6%	9%	17%
# of commercial establishments to be weatherized	6	10	20

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	718	591	429
% of households with wood heat systems	57%	45%	30%
New efficient wood heat systems in commercial establishments	18	23	32
% commercial establishments with wood heat systems	18%	21%	28%
New heat pumps in residential units	213	451	573
% of households with heat pumps	17%	34%	41%
Estimated commercial establishments with heat pumps	7	13	19
% of commercial establishments with heat pumps	7%	12%	17%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	1,876	1,989	2,108
% of customers to upgrade electrical equipment	26%	39%	54%
# of customers to upgrade electrical equipment	497	781	1,145

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	2,277	2,562	2,882
Number of vehicles powered by electricity	290	927	1,995
% of vehicles powered by electricity	13%	36%	69%
Number of vehicles using bio-fuel blends	1,975	1,358	237
% of vehicles using bio-fuel blends	87%	53%	8%

Holland

2015 Population estimate: **610**

Land (in acres):
24,279

Population density:
15.8/square mile

A. Residential Thermal Use

Total Households (HHs): **282**

Total owned: **261**, Avg. HH Size: **2.4**,
Percentage built before 1940: **13.0%**

Total rented: **21**, Avg. HH Size: **1.95**,
Percentage built before 1940: **33.3%**

Total vacant units for recreational or
seasonal use: **133**

Total use for all occupied HHs:
38,718 MMBTUs

Mean MMBTU per HH: **137**

Total use for all seasonal HHs:
905 MMBTUs

Total cost for all occupied HHs:
\$353,614

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	17	15,465	gallons	6.0%	5.0%	19.0%	11.1%
Electricity	0	--	kWh	0.0%	0.0%	0.0%	0.0%
Fuel Oil	108	70,010	gallons	38.3%	39.5%	23.8%	44.2%
Wood	150	666	cords	53.2%	52.9%	57.1%	44.8%
Coal/Coke	4	19	tons	1.4%	1.5%	0.0%	2.0%
Other	3	--	--	1.1%	1.1%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	3
Average annual heating load per building:	2,162 MMBTUs
Estimated total heat energy consumption:	6,486 MMBTUs

C. Transportation Energy Use

Total vehicles:	548	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	7,762,000
Fossil Fuel:	317,342 gallons 38,481 MMBTUs	Ethanol:	31,385 gallons 2,659 MMBTUs	Total:	41,139 MMBTUs \$784,636
Registered EVs as of January 2017:0		(0 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	1,920,877	6,554
Residential	2,127,357	7,259
Total	4,048,234	13,813
Average Residential Usage	5,483	18.71

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	299	317	336
% of households to be weatherized	19%	32%	32%
# of households to be weatherized	58	101	108
Estimated # of commercial establishments	3	3	4
% of commercial establishments to be weatherized	2%	3%	6%
# of commercial establishments to be weatherized	0	0	0

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	149	122	89
% of households with wood heat systems	50%	39%	26%
New efficient wood heat systems in commercial establishments	0	0	0
% commercial establishments with wood heat systems	6%	7%	9%
New heat pumps in residential units	44	93	118
% of households with heat pumps	15%	29%	35%
Estimated commercial establishments with heat pumps	0	0	0
% of commercial establishments with heat pumps	2%	4%	5%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	448	475	504
% of customers to upgrade electrical equipment	26%	38%	53%
# of customers to upgrade electrical equipment	115	181	265

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	621	699	786
Number of vehicles powered by electricity	67	215	462
% of vehicles powered by electricity	11%	31%	59%
Number of vehicles using bio-fuel blends	457	314	55
% of vehicles using bio-fuel blends	74%	45%	7%

Irasburg

2015 Population estimates: **1,127**

Land (in acres): **26,095**

Population density: **27.6/square mile**

A. Residential Thermal Use

Total Households (HHs): **521**

Total owned: **435**, Avg. HH Size: **2.28**,
Percentage built before 1940: **20.2%**

Total rented: **86**, Avg. HH Size: **3.0**,
Percentage built before 1940: **15.1%**

Total vacant units for recreational or seasonal use: **71**

Total use for all occupied HHs: **64,562 MMBTUs**

Mean MMBTU per HH: **124**

Total use for all seasonal HHs: **465 MMBTUs**

Total cost for all occupied HHs: **\$696,499**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	36	32,599	gallons	6.9%	3.9%	22.1%	11.9%
Electricity	7	188,068	kWh	1.3%	1.6%	0.0%	4.1%
Fuel Oil	276	175,666	gallons	53.0%	51.5%	60.5%	56.2%
Wood	189	854	cords	36.3%	40.0%	17.4%	27.8%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	13	--	--	2.5%	3.0%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	16
Average annual heating load per building:	897 MMBTUs
Estimated total heat energy consumption:	14,347 MMBTUs

C. Transportation Energy Use

Total vehicles:	989	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	13,846,000
Fossil Fuel:	572,721 gallons 69,448 MMBTUs	Ethanol:	56,643 gallons 4,798 MMBTUs	Total:	74,246 MMBTUs \$1,416,068
Registered EVs as of January 2017:2		(16 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	3,469,569	11,838
Residential	3,498,840	11,938
Total	6,968,409	23,776
Average Residential Usage	7,155	24.41

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	552	585	621
% of households to be weatherized	20%	33%	34%
# of households to be weatherized	112	195	208
Estimated # of commercial establishments	17	18	19
% of commercial establishments to be weatherized	5%	8%	14%
# of commercial establishments to be weatherized	1	1	3

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	287	236	171
% of households with wood heat systems	52%	40%	28%
New efficient wood heat systems in commercial establishments	2	3	4
% commercial establishments with wood heat systems	14%	17%	22%
New heat pumps in residential units	85	180	228
% of households with heat pumps	15%	31%	37%
Estimated commercial establishments with heat pumps	1	2	2
% of commercial establishments with heat pumps	5%	9%	13%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	828	878	931
% of customers to upgrade electrical equipment	24%	36%	49%
# of customers to upgrade electrical equipment	200	314	460

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	1,115	1,254	1,411
Number of vehicles powered by electricity	117	372	801
% of vehicles powered by electricity	10%	30%	57%
Number of vehicles using bio-fuel blends	793	545	95
% of vehicles using bio-fuel blends	71%	43%	7%

Jay

2015 Population estimate: **560**

Land (in acres) **21,766**

Population density: **16.5/square mile**

A. Residential Thermal Use

Total Households (HHs): **276**

Total owned: **211**, Avg. HH Size: **2.28**,
Percentage built before 1940: **10.9%**

Total rented: **65**, Avg. HH Size: **3.15**
Percentage built before 1940: **10.8%**

Total vacant units for recreational or seasonal use: **345**

Total use for all occupied HHs: **31,063 MMBTUs**

Mean MMBTU per HH: **113**

Total use for all seasonal HHs: **4,271 MMBTUs**

Total cost for all occupied HHs: **\$415,295**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	89	79,617	gallons	32.2%	24.2%	58.5%	48.7%
Electricity	0	--	kWh	0.0%	0.0%	0.0%	0.0%
Fuel Oil	94	56,187	gallons	34.1%	34.8%	41.5%	30.2%
Wood	90	387	cords	32.6%	42.7%	0.0%	21.1%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	3	--	--	1.1%	1.4%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	14
Average annual heating load per building:	1,028 MMBTUs
Estimated total heat energy consumption:	14,392 MMBTUs

C. Transportation Energy Use

Total vehicles:	586	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	8,204,000
Fossil Fuel:	339,347 gallons 41,149 MMBTUs	Ethanol:	33,562 gallons 2,843 MMBTUs	Total:	43,992 MMBTUs \$839,045
Registered EVs as of January 2017:0		(0 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	17,255,443	58,876
Residential	3,581,641	12,221
Total	20,837,084	71,096
Average Residential Usage	4,744	16.19

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	293	310	329
% of households to be weatherized	29%	47%	48%
# of households to be weatherized	84	147	157
Estimated # of commercial establishments	15	16	17
% of commercial establishments to be weatherized	4%	7%	12%
# of commercial establishments to be weatherized	1	1	2

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	221	185	134
% of households with wood heat systems	76%	60%	41%
New efficient wood heat systems in commercial establishments	2	2	3
% commercial establishments with wood heat systems	12%	15%	19%
New heat pumps in residential units	66	141	179
% of households with heat pumps	22%	45%	54%
Estimated commercial establishments with heat pumps	1	1	2
% of commercial establishments with heat pumps	5%	8%	11%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	439	465	493
% of customers to upgrade electrical equipment	31%	46%	64%
# of customers to upgrade electrical equipment	137	215	315

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	659	742	834
Number of vehicles powered by electricity	80	255	548
% of vehicles powered by electricity	12%	34%	66%
Number of vehicles using bio-fuel blends	543	373	65
% of vehicles using bio-fuel blends	82%	50%	8%

Kirby

2015 Population estimates: **497**

Land (in acres): **15,832**

Population density: **76/square mile**

A. Residential Thermal Use

Total Households (HHs): **162**

Total owned: **147**, Avg. HH Size: **2.71**,
Percentage built before 1940: **19.7%**

Total rented: **17**, Avg. HH Size: **1.78**,
Percentage built before 1940: **17.6%**

Total vacant units for recreational or seasonal use: **44**

Total use for all occupied HHs: **25,742 MMBTUs**

Mean MMBTU per HH: **157**

Total use for all seasonal HHs: **374 MMBTUS**

Total cost for all occupied HHs: **\$229,940**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	10	9,804	gallons	6.1%	4.8%	17.6%	10.8%
Electricity	2	26,431	KwH	1.2%	0.0%	11.8%	1.7%
Fuel Oil	65	45,399	gallons	39.6%	36.1%	70.6%	44.0%
Wood	81	440	cords	49.4%	55.1%	0.0%	43.4%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	4	--		2.4%	2.7%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	4
Average annual heating load per building:	530 MMBTUs
Estimated total heat energy consumption:	2,120 MMBTUs

C. Transportation Energy Use

Total vehicles:	337	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	4,718,000
Fossil Fuel:	214,455 gallons 23,664 MMBTUs	Ethanol:	19,301 gallons 1,635 MMBTUs	Total:	25,299 MMBTUs \$482,523
Registered EVs as of January 2017:0		(0 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	95,917	327
Residential	3,586,802	12,238
Total	3,682,719	12,565
Average Residential Usage	16,084	54.88

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	172	182	193
% of households to be weatherized	18%	30%	31%
# of households to be weatherized	32	55	59
Estimated # of commercial establishments	4	4	5
% of commercial establishments to be weatherized	8%	13%	23%
# of commercial establishments to be weatherized	0	1	1

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	81	66	48
% of households with wood heat systems	47%	36%	25%
New efficient wood heat systems in commercial establishments	1	1	2
% commercial establishments with wood heat systems	24%	29%	38%
New heat pumps in residential units	24	51	64
% of households with heat pumps	14%	28%	33%
Estimated commercial establishments with heat pumps	0	1	1
% of commercial establishments with heat pumps	9%	16%	23%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	258	273	289
% of customers to upgrade electrical equipment	28%	42%	58%
# of customers to upgrade electrical equipment	73	114	167

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	380	428	481
Number of vehicles powered by electricity	42	135	292
% of vehicles powered by electricity	11%	32%	61%
Number of vehicles using bio-fuel blends	289	198	35
% of vehicles using bio-fuel blends	76%	46%	7%

Lemington

2015 Population estimates: **101**

Land (in acres): **22,613**

Population density: **2.9/square mile**

A. Residential Thermal Use

Total Households (HHs): **65**

Total owned: **58**, Avg. HH Size: **2.28**,
Percentage built before 1940: **27.6%**

Total rented: **7**, Avg. HH Size: **2.43**,
Percentage built before 1940: **28.6%**

Total vacant units for recreational or seasonal use: **19**

Total use for all occupied HHs: **7,197 MMBTUs**

Mean MMBTU per HH: **111**

Total use for all seasonal HHs: **110 MMBTUs**

Total cost for all occupied HHs: **\$96,056**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	4	4,213	gallons	62.0%	6.9%	0.0%	11.1%
Electricity	0	--	kWh	0.0%	0.0%	0.0%	0.0%
Fuel Oil	49	32,400	gallons	75.4%	72.4%	100.0%	75.2%
Wood	12	58	cords	18.5%	20.7%	0.0%	13.6%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	0	--	--	0.0%	0.0%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	n/a
Average annual heating load per building:	n/a MMBTUs
Estimated total heat energy consumption:	n/a MMBTUs

C. Transportation Energy Use

Total vehicles:	107	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	1,498,000
Fossil Fuel:	61,963 gallons 7,514 MMBTUs	Ethanol:	6,128 gallons 519 MMBTUs	Total:	8,033 MMBTUs \$153,205
Registered EVs as of January 2017: 0		(0 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	N/A	N/A
Residential	389,081	1,328
Total	389,081	1,328
Average Residential Usage	5,404	18.44

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	69	73	77
% of households to be weatherized	20%	33%	34%
# of households to be weatherized	14	24	26
Estimated # of commercial establishments	--	--	--
% of commercial establishments to be weatherized	--	--	--
# of commercial establishments to be weatherized	--	--	--

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	36	30	21
% of households with wood heat systems	52%	41%	28%
New efficient wood heat systems in commercial establishments	--	--	--
% commercial establishments with wood heat systems	--	--	--
New heat pumps in residential units	11	23	29
% of households with heat pumps	16%	31%	37%
Estimated commercial establishments with heat pumps	--	--	--
% of commercial establishments with heat pumps	--	--	--

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	103	110	116
% of customers to upgrade electrical equipment	22%	32%	44%
# of customers to upgrade electrical equipment	22	35	52

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	120	135	152
Number of vehicles powered by electricity	13	42	90
% of vehicles powered by electricity	11%	31%	59%
Number of vehicles using bio-fuel blends	89	61	11
% of vehicles using bio-fuel blends	74%	45%	7%

Lowell

2015 Population estimates: **852**

Land (in acres): **36,083**

Population density: **15.1/square mile**

A. Residential Thermal Use

Total Households (HHs): **300**

Total owned: **257**, Avg. HH Size: **2.51**,
Percentage built before 1940: **26.1%**

Total rented: **49**, Avg. HH Size: **3.08**,
Percentage built before 1940: **36.7%**

Total vacant units for recreational or seasonal use: **148**

Total use for all occupied HHs: **43,347 MMBTUs**

Mean MMBTU per HH: **142**

Total use for all seasonal HHs: **1,093 MMBTUs**

Total cost for all occupied HHs: **\$489,436**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	46	52,092	gallons	15.0%	16.3%	8.2%	27.0%
Electricity	2	61,476	KwH	0.7%	0.8%	0.0%	1.9%
Fuel Oil	127	93,306	gallons	41.5%	41.2%	42.9%	42.5%
Wood	117	599	cords	38.2%	38.5%	36.7%	27.8%
Coal/Coke	2	11	tons	0.7%	0.8%	0.0%	0.8%
Other	6	--		2.0%	2.3%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	7
Average annual heating load per building:	1,496 MMBTUs
Estimated total heat energy consumption:	10,472 MMBTUs

C. Transportation Energy Use

Total vehicles:	583	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	8,162,000
Fossil Fuel:	337,610 gallons 40,938 MMBTUs	Ethanol:	33,390 gallons 2,828 MMBTUs	Total:	43,767 MMBTUs \$834,750
Registered EVs as of January 2017:		(MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	1,587,873	5,418
Residential	2,732,323	9,323
Total	4,320,196	14,741
Average Residential Usage	6,537	22.30

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	318	337	357
% of households to be weatherized	20%	34%	34%
# of households to be weatherized	65	113	121
Estimated # of commercial establishments	7	8	8
% of commercial establishments to be weatherized	3%	5%	8%
# of commercial establishments to be weatherized	0	0	1

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	167	137	99
% of households with wood heat systems	53%	41%	28%
New efficient wood heat systems in commercial establishments	1	1	1
% commercial establishments with wood heat systems	8%	10%	13%
New heat pumps in residential units	50	105	133
% of households with heat pumps	16%	31%	37%
Estimated commercial establishments with heat pumps	0	0	1
% of commercial establishments with heat pumps	3%	6%	8%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	477	506	536
% of customers to upgrade electrical equipment	28%	42%	58%
# of customers to upgrade electrical equipment	135	213	312

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	660	743	836
Number of vehicles powered by electricity	79	252	543
% of vehicles powered by electricity	12%	34%	65%
Number of vehicles using bio-fuel blends	537	370	65
% of vehicles using bio-fuel blends	81%	50%	8%

Lunenburg

2015 Population estimates: **1,281**

Land (in acres): **29,184**

Population density: **28.1/square mile**

A. Residential Thermal Use

Total Households (HHs): **570**

Total owned: **448**, Avg. HH Size: **2.49**,
Percentage built before 1940: **29.2%**

Total rented: **128**, Avg. HH Size: **2.03**,
Percentage built before 1940: **53.9%**

Total vacant units for recreational or seasonal use: **169**

Total use for all occupied HHs: **72,485 MMBTUs**

Mean MMBTU per HH: **126**

Total use for all seasonal HHs: **1,180 MMBTUs**

Total cost for all occupied HHs: **\$1,598,776**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	95	95,724	gallons	16.5%	14.1%	25.0%	15.2%
Electricity	0	--	kWh	0.0%	0.0%	0.0%	0.0%
Fuel Oil	303	211,506	gallons	52.6%	52.9%	51.6%	29.5%
Wood	153	762	cords	26.6%	28.8%	18.8%	10.8%
Coal/Coke	4	22	tons	0.7%	0.9%	0.0%	0.5%
Other	15	--	--	2.6%	2.7%	2.3%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	15
Average annual heating load per building:	1,649 MMBTUs
Estimated total heat energy consumption:	24,736 MMBTUs

C. Transportation Energy Use

Total vehicles:	1,099	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	15,386,000
Fossil Fuel:	636,421 gallons 77,172 MMBTUs	Ethanol:	62,943 gallons 5,332 MMBTUs	Total:	82,504 MMBTUs \$1,573,568
Registered EVs as of January 2017: 0		(0 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	701,342	2,393
Residential	4,428,774	15,111
Total	5,130,116	17,504
Average Residential Usage	5,929	20.23

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	604	640	679
% of households to be weatherized	20%	33%	33%
# of households to be weatherized	121	211	226
Estimated # of commercial establishments	16	17	18
% of commercial establishments to be weatherized	0	1	1
# of commercial establishments to be weatherized	604	640	679

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	311	256	185
% of households with wood heat systems	52%	40%	27%
New efficient wood heat systems in commercial establishments	1	2	2
% commercial establishments with wood heat systems	92	195	247
New heat pumps in residential units	15%	30%	36%
% of households with heat pumps	0	1	1
Estimated commercial establishments with heat pumps	311	256	185
% of commercial establishments with heat pumps	52%	40%	27%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	906	961	1,018
% of customers to upgrade electrical equipment	25%	36%	50%
# of customers to upgrade electrical equipment	222	349	512

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	1,236	1,391	1,565
Number of vehicles powered by electricity	130	415	892
% of vehicles powered by electricity	11%	30%	57%
Number of vehicles using bio-fuel blends	883	607	106
% of vehicles using bio-fuel blends	71%	44%	7%

Lyndon

2015 Population estimates: **5,907**

Land (in acres): **25,405**

Population density: **148.8/square mile**

A. Residential Thermal Use

Total Households (HHs): **2,281**

Total owned: **1,465**, Avg. HH Size: **2.36**,
Percentage built before 1940: **17.0%**

Total rented: **825**, Avg. HH Size **2.24**;
Percentage built before 1940: **51.2%**

Total vacant units for recreational or seasonal use: **58**

Total use for all occupied HHs: **222,747 MMBTUs**

Mean MMBTU per HH: **97**

Total use for all seasonal HHs: **326 MMBTUs**

Total cost for all occupied HHs: **\$3,448,849**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	449	385,078	gallons	19.6%	11.4%	34.2%	28.4%
Electricity	37	878,087	KwH	1.6%	1.2%	2.3%	3.8%
Fuel Oil	1469	899,165	gallons	64.1%	65.8%	61.2%	58.1%
Wood	308	1,419	cords	13.4%	20.4%	1.1%	9.3%
Coal/Coke	18	74	tons	0.8%	0.5%	1.2%	0.3%
Other	0	--		0.0%	0.0%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	144
Average annual heating load per building:	822 MMBTUs
Estimated total heat energy consumption:	118,360 MMBTUs

C. Transportation Energy Use

Total vehicles:	3,784	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	52,780,000
Fossil Fuel:	2,183,173 gallons 264,729 MMBTUs	Ethanol:	215,918 gallons 18,290 MMBTUs	Total:	283,020 MMBTUs \$5,397,955
Registered EVs as of January 2017: 14		(111 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	16,973,338	57,913
Residential	22,813,876	77,841
Total	39,787,214	135,754
Average Residential Usage	9,975	34.04

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	2,418	2,563	2,717
% of households to be weatherized	29%	48%	49%
# of households to be weatherized	709	1,233	1,318
Estimated # of commercial establishments	153	162	172
% of commercial establishments to be weatherized	5%	8%	15%
# of commercial establishments to be weatherized	8	13	25

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	1,863	1,556	1,128
% of households with wood heat systems	77%	61%	42%
New efficient wood heat systems in commercial establishments	23	30	41
% commercial establishments with wood heat systems	15%	18%	24%
New heat pumps in residential units	553	1,187	1,507
% of households with heat pumps	23%	46%	55%
Estimated commercial establishments with heat pumps	9	17	25
% of commercial establishments with heat pumps	6%	10%	14%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	3,627	3,844	4,075
% of customers to upgrade electrical equipment	27%	41%	56%
# of customers to upgrade electrical equipment	996	1,565	2,295

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	4,273	4,807	5,408
Number of vehicles powered by electricity	582	1,858	3,999
% of vehicles powered by electricity	14%	39%	74%
Number of vehicles using bio-fuel blends	3,959	2,722	476
% of vehicles using bio-fuel blends	93%	57%	9%

Maidstone

2015 Population estimates: **203**

Land (in acres): **20,560**

Population density: **6.3/square mile**

A. Residential Thermal Use

Total Households (HHs): **109**

Total owned: **93**, Avg. HH Size: **1.87**,
Percentage built before 1940: **18.3%**

Total rented: **16**, Avg. HH Size: **2.25**,
Percentage built before 1940: **0%**

Total vacant units for recreational or seasonal use: **227**

Total use for all occupied HHs: **11,069 MMBTUs**

Mean MMBTU per HH: **102**

Total use for all seasonal HHs: **1,223 MMBTUs**

Total cost for all occupied HHs: **\$126,235**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	19	13,590	gallons	17.4%	12.9%	43.8%	27.3%
Electricity	3	58,183	kWh	2.8%	2.2%	6.3%	6.9%
Fuel Oil	40	20,833	gallons	36.7%	39.8%	18.8%	36.8%
Wood	45	161	cords	41.3%	43.0%	31.3%	28.9%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	2	--	--	1.8%	2.2%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	4
Average annual heating load per building:	1,864 MMBTUs
Estimated total heat energy consumption:	7,457 MMBTUs

C. Transportation Energy Use

Total vehicles:	192	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	2,688,000
Fossil Fuel:	111,185 gallons 13,482 MMBTUs	Ethanol:	10,996 gallons 932 MMBTUs	Total:	14,414 MMBTUs \$274,909
Registered EVs as of January 2017: 0		(0 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	193,849	661
Residential	1,019,919	3,480
Total	1,213,768	4,141
Average Residential Usage	3,682	12.56

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	116	122	130
% of households to be weatherized	21%	35%	36%
# of households to be weatherized	25	43	46
Estimated # of commercial establishments	4	4	5
% of commercial establishments to be weatherized	0	0	0
# of commercial establishments to be weatherized	0	0	0

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	64	52	38
% of households with wood heat systems	55%	43%	29%
New efficient wood heat systems in commercial establishments	0	0	0
% commercial establishments with wood heat systems	0	0	0
New heat pumps in residential units	19	40	51
% of households with heat pumps	16%	33%	39%
Estimated commercial establishments with heat pumps	0	0	0
% of commercial establishments with heat pumps	0	0	0

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	173	184	195
% of customers to upgrade electrical equipment	21%	31%	43%
# of customers to upgrade electrical equipment	36	57	83

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	216	243	273
Number of vehicles powered by electricity	21	68	145
% of vehicles powered by electricity	10%	28%	53%
Number of vehicles using bio-fuel blends	144	99	17
% of vehicles using bio-fuel blends	67%	41%	6%

Morgan

2015 Population estimates: **739**

Land (in acres):
21,839

Population density:
21.7/square mile

A. Residential Thermal Use

Total Households (HHs): **285**

Total owned: **241**, Avg. HH Size: **2.13**,
Percentage built before 1940: **14.9%**

Total rented: **44**, Avg. HH Size: **2.41**,
Percentage built before 1940: **61.4%**

Total vacant units for recreational or
seasonal use: **503**

Total use for all occupied HHs:
31,033 MMBTUs

Mean MMBTU per HH: **109**

Total use for all seasonal HHs:
2,767 MMBTUs

Total cost for all occupied HHs:
\$410,903

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	71	63,918	gallons	24.9%	26.1%	18.2%	39.5%
Electricity	2	48,413	KwH	0.7%	0.8%	0.0%	1.8%
Fuel Oil	119	70,165	gallons	41.8%	39.8%	52.3%	38.1%
Wood	91	374	cords	31.9%	32.4%	29.5%	20.6%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	2	--		0.7%	0.8%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	8
Average annual heating load per building:	505 MMBTUs
Estimated total heat energy consumption:	4,041 MMBTUs

C. Transportation Energy Use

Total vehicles:	528	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	7,392,000
Fossil Fuel:	305,760 gallons 121,259 MMBTUs	Ethanol:	30,240 gallons 2,562 MMBTUs	Total:	39,638 MMBTUs \$756,000
Registered EVs as of January 2017: 0		(0 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	471,092	1,607
Residential	2,712,634	9,256
Total	3,183,726	10,863
Average Residential Usage	3,943	13.45

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	302	320	339
% of households to be weatherized	26%	42%	42%
# of households to be weatherized	77	135	144
Estimated # of commercial establishments	8	9	10
% of commercial establishments to be weatherized	8%	13%	24%
# of commercial establishments to be weatherized	1	1	2

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	202	167	121
% of households with wood heat systems	67%	52%	36%
New efficient wood heat systems in commercial establishments	2	3	4
% commercial establishments with wood heat systems	25%	30%	40%
New heat pumps in residential units	60	128	162
% of households with heat pumps	20%	40%	48%
Estimated commercial establishments with heat pumps	1	2	2
% of commercial establishments with heat pumps	10%	17%	24%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	453	480	509
% of customers to upgrade electrical equipment	27%	39%	54%
# of customers to upgrade electrical equipment	120	189	277

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	594	668	752
Number of vehicles powered by electricity	70	225	483
% of vehicles powered by electricity	12%	34%	64%
Number of vehicles using bio-fuel blends	478	329	58
% of vehicles using bio-fuel blends	81%	49%	8%

Newark

2015 Population estimates: **576**

Land (in acres): **23,833**

Population density: **15.5/square mile**

A. Residential Thermal Use

Total Households (HHs): **226**

Total owned: **193**, Avg. HH Size: **2.1**,
Percentage built before 1940: **18.7%**

Total rented: **33**, Avg. HH Size: **2.52**,
Percentage built before 1940: **12.1%**

Total vacant units for recreational or seasonal use: **306**

Total use for all occupied HHs: **26,951 MMBTUs**

Mean MMBTU per HH: **119**

Total use for all seasonal HHs: **1,927 MMBTUs**

Total cost for all occupied HHs: **\$262,641**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	47	39,599	gallons	20.8%	17.1%	42.4%	34.4%
Electricity	0	--	KwH	0.0%	0.0%	0.0%	0.0%
Fuel Oil	71	41,331	gallons	31.4%	32.1%	27.3%	31.5%
Wood	108	440	cords	47.8%	50.8%	30.3%	34.1%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	0	--		0.0%	0.0%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	3
Average annual heating load per building:	1,909 MMBTUs
Estimated total heat energy consumption:	5,726 MMBTUs

C. Transportation Energy Use

Total vehicles:	384	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	5,376,000
Fossil Fuel:	222,371 gallons 26,964 MMBTUs	Ethanol:	21,993 gallons 1,863 MMBTUs	Total:	28,827 MMBTUs \$549,818
Registered EVs as of January 2017: 0		(0 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	226,466	773
Residential	5,246,765	17,902
Total	5,473,231	18,675
Average Residential Usage	12,433	42.42

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	240	254	269
% of households to be weatherized	22%	36%	36%
# of households to be weatherized	52	90	97
Estimated # of commercial establishments	3	3	4
% of commercial establishments to be weatherized	2%	4%	6%
# of commercial establishments to be weatherized	0	0	0

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	134	110	80
% of households with wood heat systems	56%	43%	30%
New efficient wood heat systems in commercial establishments	--	--	--
% commercial establishments with wood heat systems	--%	--%	--%
New heat pumps in residential units	40	84	107
% of households with heat pumps	17%	33%	40%
Estimated commercial establishments with heat pumps	--	--	--
% of commercial establishments with heat pumps	--	--	--

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	359	381	404
% of customers to upgrade electrical equipment	25%	37%	51%
# of customers to upgrade electrical equipment	89	140	205

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	448	504	567
Number of vehicles powered by electricity	52	166	358
% of vehicles powered by electricity	12%	33%	63%
Number of vehicles using bio-fuel blends	354	244	43
% of vehicles using bio-fuel blends	79%	48%	8%

Newport City

2015 Population estimates: **4,442**

Land (in acres): **4,881**

Population density: **582.4/square mile**

A. Residential Thermal Use

Total Households (HHs): **1,786**

Total owned: **1,017**, Avg. HH Size: **2.32**,
Percentage built before 1940: **47.3%**

Total rented: **769**, Avg. HH Size: **2.13**,
Percentage built before 1940: **59.8%**

Total vacant units for recreational or seasonal use: **185**

Total use for all occupied HHs: **188,637 MMBTUs**

Mean MMBTU per HH: **106**

Total use for all seasonal HHs: **1,207 MMBTUs**

Total cost for all occupied HHs: **\$2,902,465**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	232	224,748	gallons	13.0%	10.6%	16.1%	19.7%
Electricity	60	1,413,480	kWh	3.4%	1.6%	5.7%	7.3%
Fuel Oil	1,272	843,030	gallons	71.2%	69.4%	73.6%	64.8%
Wood	200	1,056	cords	11.2%	17.4%	3.0%	8.3%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	22	--		1.2%	1.0%	1.6%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	209
Average annual heating load per building:	756 MMBTUs
Estimated total heat energy consumption:	158,061 MMBTUs

C. Transportation Energy Use

Total vehicles:	2,541	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	35,574,000
Fossil Fuel:	1,471,470 gallons 121,259 MMBTUs	Ethanol:	145,530 gallons 12,838 MMBTUs	Total:	190,756 MMBTUs \$3,638,250
Registered EVs as of January 2017: 8		64 (MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	32,186,539	109,820
Residential	11,746,732	40,080
Total	43,933,271	149,900
Average Residential Usage	5,517	18.83

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	1,893	2,007	2,127
% of households to be weatherized	26%	43%	44%
# of households to be weatherized	498	866	926
Estimated # of commercial establishments	222	235	249
% of commercial establishments to be weatherized	5%	9%	16%
# of commercial establishments to be weatherized	12	21	40

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	1,299	1,078	781
% of households with wood heat systems	69%	54%	37%
New efficient wood heat systems in commercial establishments	37	47	65
% commercial establishments with wood heat systems	17%	20%	26%
New heat pumps in residential units	385	823	1,044
% of households with heat pumps	20%	41%	49%
Estimated commercial establishments with heat pumps	14	26	39
% of commercial establishments with heat pumps	6%	11%	16%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	2,840	3,010	3,191
% of customers to upgrade electrical equipment	27%	40%	55%
# of customers to upgrade electrical equipment	757	1,190	1,744

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	2,868	3,226	3,629
Number of vehicles powered by electricity	442	1,412	3,040
% of vehicles powered by electricity	15%	44%	84%
Number of vehicles using bio-fuel blends	2,426	2,069	362
% of vehicles using bio-fuel blends	85%	64%	10%

Newport Town

2015 Population estimates: **2,248**

Land (in acres): **27,881**

Population density: **51.6/square mile**

A. Residential Thermal Use

Total Households (HHs): **708**

Total owned: **619**, Avg. HH Size: **2.48**,
Percentage built before 1940: **21.1%**

Total rented: **89**, Avg. HH Size: **2.67**,
Percentage built before 1940: **3.4%**

Total vacant units for recreational or seasonal use: **149**

Total use for all occupied HHs: **92,999 MMBTUs**

Mean MMBTU per HH: **131**

Total use for all seasonal HHs: **1,034 MMBTUs**

Total cost for all occupied HHs: **\$1,097,238**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	88	97,649	gallons	12.4%	13.9%	2.2%	22.6%
Electricity	6	179,868	KwH	0.8%	1.0%	0.0%	2.5%
Fuel Oil	366	251,520	gallons	51.7%	49.4%	67.4%	51.1%
Wood	236	1,151	cords	33.3%	33.8%	30.3%	23.8%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	12	--		1.7%	0.0%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	36
Average annual heating load per building:	511 MMBTUs
Estimated total heat energy consumption:	18,405 MMBTUs

C. Transportation Energy Use

Total vehicles:	1,363	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	19,082,000
Fossil Fuel:	789,301 gallons 95,709 MMBTUs	Ethanol:	78,063 gallons 6,613 MMBTUs	Total:	102,322 MMBTUs \$1,951,568
Registered EVs as of January 2017: 1		(8 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	2,163,946	7,383
Residential	5,784,349	19,736
Total	7,948,295	27,120
Average Residential Usage	6,870	23.44

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	750	796	843
% of households to be weatherized	21%	34%	34%
# of households to be weatherized	156	271	290
Estimated # of commercial establishments	38	40	43
% of commercial establishments to be weatherized	8%	13%	24%
# of commercial establishments to be weatherized	3	5	10

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	400	329	238
% of households with wood heat systems	53%	41%	28%
New efficient wood heat systems in commercial establishments	9	12	17
% commercial establishments with wood heat systems	25%	30%	39%
New heat pumps in residential units	119	251	318
% of households with heat pumps	16%	32%	38%
Estimated commercial establishments with heat pumps	4	7	10
% of commercial establishments with heat pumps	9%	17%	10%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	1,126	1,193	1,265
% of customers to upgrade electrical equipment	26%	39%	54%
# of customers to upgrade electrical equipment	295	463	678

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	1,538	1,730	1,946
Number of vehicles powered by electricity	172	549	1,182
% of vehicles powered by electricity	11%	32%	61%
Number of vehicles using bio-fuel blends	1,170	805	141
% of vehicles using bio-fuel blends	76%	47%	7%

Norton

2015 Population estimates: **160**

Land (in acres): **24,809**

Population density: **4.1/square mile**

A. Residential Thermal Use

Total Households (HHs): **76**

Total owned: **65**, Avg. HH Size: **2.0**,
Percentage built before 1940: **32.3%**

Total rented: **11**, Avg. HH Size: **1.55**,
Percentage built before 1940: **36.4%**

Total vacant units for recreational or seasonal use: **146**

Total use for all occupied HHs: **8,574 MMBTUs**

Mean MMBTU per HH: **113**

Total use for all seasonal HHs: **898 MMBTUs**

Total cost for all occupied HHs: **\$94,801**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	4	3,808	gallons	5.3%	6.2%	0.0%	10.2%
Electricity	2	38,461	KwH	2.6%	1.5%	9.1%	6.1%
Fuel Oil	41	23,189	gallons	53.9%	50.8%	72.7%	54.5%
Wood	29	122	cords	38.2%	41.5%	18.2%	29.2%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	0	--		0.0%	0.0%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	7
Average annual heating load per building:	549 MMBTUs
Estimated total heat energy consumption:	3,840 MMBTUs

C. Transportation Energy Use

Total vehicles:	128	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	1,792,000
Fossil Fuel:	74,124 gallons 8,988 MMBTUs	Ethanol:	7,331 gallons 621 MMBTUs	Total:	9,609 MMBTUs \$183,273
Registered EVs as of January 2017: 0		(0 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	360,059	1,229
Residential	682,230	2,328
Total	1,042,289	3,556
Average Residential Usage	3,629	12.38

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	81	85	91
% of households to be weatherized	21%	34%	34%
# of households to be weatherized	17	29	31
Estimated # of commercial establishments	7	8	8
% of commercial establishments to be weatherized	1	1	2
# of commercial establishments to be weatherized	81	85	91

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	43	35	25
% of households with wood heat systems	43	35	25
New efficient wood heat systems in commercial establishments	2	2	3
% commercial establishments with wood heat systems	13	27	34
New heat pumps in residential units	16%	31%	37%
% of households with heat pumps	1	1	2
Estimated commercial establishments with heat pumps	43	35	25
% of commercial establishments with heat pumps	43	35	25

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	121	128	136
% of customers to upgrade electrical equipment	22%	33%	46%
# of customers to upgrade electrical equipment	27	42	62

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	144	162	182
Number of vehicles powered by electricity	16	50	108
% of vehicles powered by electricity	11%	31%	59%
Number of vehicles using bio-fuel blends	107	73	13
% of vehicles using bio-fuel blends	74%	45%	7%

Peacham

2015 Population estimates: **740**

Land (in acres): **30,539**

Population density: **15.5/square mile**

A. Residential Thermal Use

Total Households (HHs): **299**

Total owned: **261**, Avg. HH Size: **2.63**,
Percentage built before 1940: **41.4%**

Total rented: **38**, Avg. HH Size: **1.68**,
Percentage built before 1940: **57.9%**

Total vacant units for recreational or seasonal use: **215**

Total use for all occupied HHs: **47,991 MMBTUs**

Mean MMBTU per HH: **161**

Total use for all seasonal HHs:

Total cost for all occupied HHs: **\$529,030**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	36	34,498	gallons	12.0%	6.9%	47.4%	16.6%
Electricity	6	212,376	KwH	2.0%	2.3%	0.0%	6.0%
Fuel Oil	130	110,327	gallons	43.5%	47.5%	15.8%	46.5%
Wood	127	720	cords	42.5%	43.3%	36.8%	30.9%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	0	--		0.0%	0.0%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	6
Average annual heating load per building:	3,522 MMBTUs
Estimated total heat energy consumption:	2,135 MMBTUs

C. Transportation Energy Use

Total vehicles:	626	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	8,764,000
Fossil Fuel:	362,511 gallons 43,958 MMBTUs	Ethanol:	35,853 gallons 3,037 MMBTUs	Total:	46,995 MMBTUs \$896,318
Registered EVs as of January 2017: 0		(0 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	271,889	928
Residential	2,903,500	9,907
Total	3,175,388	10,834
Average Residential Usage	6,178	21.08

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	317	336	356
% of households to be weatherized	16%	26%	26%
# of households to be weatherized	50	87	93
Estimated # of commercial establishments	6	7	7
% of commercial establishments to be weatherized	--%	--%	--%
# of commercial establishments to be weatherized	--%	--%	--%

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	127	104	75
% of households with wood heat systems	40%	31%	21%
New efficient wood heat systems in commercial establishments	0	0	0
% commercial establishments with wood heat systems	--%	--%	--%
New heat pumps in residential units	38	79	100
% of households with heat pumps	12%	24%	28%
Estimated commercial establishments with heat pumps	0	0	0
% of commercial establishments with heat pumps	--%	--%	--%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	475	504	534
% of customers to upgrade electrical equipment	24%	36%	50%
# of customers to upgrade electrical equipment	116	182	267

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	704	792	891
Number of vehicles powered by electricity	68	216	466
% of vehicles powered by electricity	10%	27%	52%
Number of vehicles using bio-fuel blends	10%	27%	52%
% of vehicles using bio-fuel blends	0%	0%	0%

Ryegate

2015 Population estimates: **1,136**

Land (in acres): **23,600**

Population density: **30.8/square mile**

A. Residential Thermal Use

Total Households (HHs): **447**

Total owned: **372**, Avg. HH Size: **2.48**,
Percentage built before 1940: **41.1%**

Total rented: **75**, Avg. HH Size: **2.48**,
Percentage built before 1940: **26.7%**

Total vacant units for recreational or seasonal use: **77**

Total use for all occupied HHs: **60,955 MMBTUs**

Mean MMBTU per HH: **136**

Total use for all seasonal HHs: **571 MMBTUs**

Total cost for all occupied HHs: **\$826,650**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	101	113,397	gallons	22.6%	20.7%	32.0%	34.8%
Electricity	7	178,179	KwH	1.6%	0.8%	5.3%	3.2%
Fuel Oil	211	161,139	gallons	47.2%	47.3%	46.7%	43.5%
Wood	121	660	cords	27.1%	29.3%	16.0%	18.1%
Coal/Coke	3	17	tons	0.7%	0.8%	0.0%	0.3%
Other	4	--		0.9%	1.1%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	12
Average annual heating load per building:	518 MMBTUs
Estimated total heat energy consumption:	6,219 MMBTUs

C. Transportation Energy Use

Total vehicles:	800	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	11,200,000
Fossil Fuel:	463,273 gallons 56,176 MMBTUs	Ethanol:	45,818 gallons 3,881 MMBTUs	Total:	60,057 MMBTUs \$1,145,455
Registered EVs as of January 2017: 0		(0 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	1,310,707	4,472
Residential	4,243,943	14,480
Total	5,554,650	18,952
Average Residential Usage	6,878	23.47

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	474	502	532
% of households to be weatherized	20%	33%	33%
# of households to be weatherized	95	165	177
Estimated # of commercial establishments	13	13	14
% of commercial establishments to be weatherized	8%	13%	23%
# of commercial establishments to be weatherized	1	2	3

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	244	200	145
% of households with wood heat systems	51%	40%	27%
New efficient wood heat systems in commercial establishments	3	4	6
% commercial establishments with wood heat systems	24%	29%	39%
New heat pumps in residential units	72	153	194
% of households with heat pumps	15%	30%	36%
Estimated commercial establishments with heat pumps	1	2	3
% of commercial establishments with heat pumps	9%	16%	23%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	711	753	799
% of customers to upgrade electrical equipment	26%	39%	54%
# of customers to upgrade electrical equipment	187	293	430

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	900	1,013	1,139
Number of vehicles powered by electricity	109	348	749
% of vehicles powered by electricity	12%	34%	66%
Number of vehicles using bio-fuel blends	0%	0%	1%
% of vehicles using bio-fuel blends	0%	0%	0%

Sheffield

2015 Population estimates: **692**

Land (in acres): **21,003**

Population density: **21.1/square mile**

A. Residential Thermal Use

Total Households (HHs): **260**

Total owned: **228**, Avg. HH Size: **2.4**,
Percentage built before 1940: **23.2%**

Total rented: **32**, Avg. HH Size: **2.91**,
Percentage built before 1940: **50.0%**

Total vacant units for recreational or seasonal use: **91**

Total use for all occupied HHs: **36,821 MMBTUs**

Mean MMBTU per HH: **142**

Total use for all seasonal HHs: **672 MMBTUs**

Total cost for all occupied HHs: **\$390,043**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	39	40,933	gallons	15.0%	11.8%	37.5%	26.7%
Electricity	0	--	KwH	0.0%	0.0%	0.0%	0.0%
Fuel Oil	104	72,793	gallons	40.0%	38.2%	53.1%	41.6%
Wood	111	545	cords	42.7%	47.4%	9.4%	31.7%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	6	--		2.3%	2.6%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	2
Average annual heating load per building:	887 MMBTUs
Estimated total heat energy consumption:	1,775 MMBTUs

C. Transportation Energy Use

Total vehicles:	515	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	7,196,000
Fossil Fuel:	297,653 gallons 36,093 MMBTUs	Ethanol:	29,438 gallons 2,494 MMBTUs	Total:	38,587 MMBTUs \$735,955
Registered EVs as of January 2017: 1		(8 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	433,199	1,478
Residential	2,658,131	9,070
Total	3,091,330	10,548
Average Residential Usage	8,154	27.82

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	276	292	310
% of households to be weatherized	17%	28%	28%
# of households to be weatherized	47	81	87
Estimated # of commercial establishments	2	2	2
% of commercial establishments to be weatherized	--%	--%	--
# of commercial establishments to be weatherized	0	0	0

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	118	97	70
% of households with wood heat systems	43%	33%	23%
New efficient wood heat systems in commercial establishments	0	0	1
% commercial establishments with wood heat systems	35	74	93
New heat pumps in residential units	13%	25%	30%
% of households with heat pumps	0	0	0
Estimated commercial establishments with heat pumps	118	97	70
% of commercial establishments with heat pumps	43%	33%	23%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	413	438	464
% of customers to upgrade electrical equipment	23%	34%	47%
# of customers to upgrade electrical equipment	95	149	218

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	579	652	733
Number of vehicles powered by electricity	55	177	381
% of vehicles powered by electricity	10%	27%	52%
Number of vehicles using bio-fuel blends	0%	0%	1%
% of vehicles using bio-fuel blends	0%	0%	0%

St. Johnsbury

2015 Population estimates: **7,442**

Land (in acres): **23,585**

Population density: **201.9/square mile**

A. Residential Thermal Use

Total Households (HHs): **3,174**

Total owned: **1,922**, Avg. HH Size: **2.65**,
Percentage built before 1940: **44.1%**

Total rented: **1,252**, Avg. HH Size: **1.71**,
Percentage built before 1940: **58.8%**

Total vacant units for recreational or seasonal use: **72**

Total use for all occupied HHs: **368,671 MMBTUs**

Mean MMBTU per HH: **116**

Total use for all seasonal HHs: **558 MMBTUs**

Total cost for all occupied HHs: **\$5,095,215**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	471	421,219	gallons	14.8%	9.4%	23.2%	21.0%
Electricity	63	1,124,686	KwH	2.0%	0.3%	4.6%	3.3%
Fuel Oil	2,128	1,465,034	gallons	67.0%	65.0%	70.2%	64.1%
Wood	434	2,597	cords	13.7%	21.3%	2.0%	11.6%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	78	--		2.5%	4.1%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	298
Average annual heating load per building:	704 MMBTUs
Estimated total heat energy consumption:	209,842 MMBTUs

C. Transportation Energy Use

Total vehicles:	5,050	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	70,336,000
Fossil Fuel:	3,197,091 gallons 352,785 MMBTUs	Ethanol:	287,738 gallons 24,374 MMBTUs	Total:	377,160 MMBTUs \$7,193,455
Registered EVs as of January 2017: 26		(207 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	57,726,084	196,961
Residential	19,773,135	67,466
Total	77,499,219	264,427
Average Residential Usage	6,084	20.76

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	3,364	3,566	3,780
% of households to be weatherized	22%	37%	37%
# of households to be weatherized	756	1,316	1,407
Estimated # of commercial establishments	316	335	355
% of commercial establishments to be weatherized	6%	10%	17%
# of commercial establishments to be weatherized	19	32	61

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	1,952	1,609	1,166
% of households with wood heat systems	58%	45%	31%
New efficient wood heat systems in commercial establishments	57	72	100
% commercial establishments with wood heat systems	18%	22%	28%
New heat pumps in residential units	579	1,228	1,558
% of households with heat pumps	17%	34%	41%
Estimated commercial establishments with heat pumps	22	40	60
% of commercial establishments with heat pumps	7%	12%	17%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	5,047	5,349	5,670
% of customers to upgrade electrical equipment	25%	37%	51%
# of customers to upgrade electrical equipment	1,264	1,987	2,913

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	5,711	6,424	7,227
Number of vehicles powered by electricity	739	2,359	5,076
% of vehicles powered by electricity	13%	37%	70%
Number of vehicles using bio-fuel blends	0%	0%	1%
% of vehicles using bio-fuel blends	0%	0%	0%

Stannard

2015 Population estimates: **224**

Land (in acres): **8,129**

Population density: **17.6/square mile**

A. Residential Thermal Use

Total Households (HHs): **94**

Total owned: **76**, Avg. HH Size: **2.68**,
Percentage built before 1940: **15.8%**

Total rented: **18**, Avg. HH Size: **4.0**,
Percentage built before 1940: **22.8%**

Total vacant units for recreational or seasonal use: **18**

Total use for all occupied HHs: **15,471 MMBTUs**

Mean MMBTU per HH: **165**

Total use for all seasonal HHs: **152 MMBTUs**

Total cost for all occupied HHs: **\$143,758**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	15	17,169	gallons	16.0%	19.7%	0.0%	30.3%
Electricity	0	--	KwH	0.0%	0.0%	0.0%	0.0%
Fuel Oil	25	18,841	gallons	26.6%	18.4%	61.1%	29.2%
Wood	49	256	cords	52.1%	55.3%	38.9%	40.4%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	5	--		5.3%	6.6%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	2
Average annual heating load per building:	202 MMBTUs
Estimated total heat energy consumption:	404 MMBTUs

C. Transportation Energy Use

Total vehicles:	189	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	2,646,000
Fossil Fuel:	109,448 gallons 13,272 MMBTUs	Ethanol:	10,825 gallons 917 MMBTUs	Total:	14,189 MMBTUs \$270,614
Registered EVs as of January 2017: 0		(0 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	N/A	N/A
Residential	606,618	2,070
Total	606,618	2,070
Average Residential Usage	5,833	19.90

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	100	106	112
% of households to be weatherized	20%	32%	33%
# of households to be weatherized	20	34	36
Estimated # of commercial establishments	2	2	2
% of commercial establishments to be weatherized	20%	33%	60%
# of commercial establishments to be weatherized	0	1	1

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	50	41	30
% of households with wood heat systems	50%	39%	27%
New efficient wood heat systems in commercial establishments	1	2	3
% commercial establishments with wood heat systems	15	31	40
New heat pumps in residential units	15%	30%	36%
% of households with heat pumps	1	1	2
Estimated commercial establishments with heat pumps	50	41	30
% of commercial establishments with heat pumps	50%	39%	27%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	149	158	168
% of customers to upgrade electrical equipment	31%	46%	64%
# of customers to upgrade electrical equipment	46	73	107

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	213	239	269
Number of vehicles powered by electricity	27	87	186
% of vehicles powered by electricity	13%	36%	69%
Number of vehicles using bio-fuel blends	0%	0%	1%
% of vehicles using bio-fuel blends	0%	0%	0%

Sutton

2015 Population estimates: **1,023**

Land (in acres): **24,633**

Population density: **26.6/square mile**

A. Residential Thermal Use

Total Households (HHs): **395**

Total owned: **359**, Avg. HH Size: **2.38**,
Percentage built before 1940: **20.6%**

Total rented: **36**, Avg. HH Size: **3.92**,
Percentage built before 1940: **30.6%**

Total vacant units for recreational or seasonal use: **91**

Total use for all occupied HHs: **52,196 MMBTUs**

Mean MMBTU per HH: **132**

Total use for all seasonal HHs: **596 MMBTUs**

Total cost for all occupied HHs: **\$611,562**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	54	57,253	gallons	13.7%	13.9%	11.1%	23.8%
Electricity	3	84,352	KwH	0.8%	0.8%	0.0%	2.1%
Fuel Oil	188	131,796	gallons	47.6%	46.8%	55.6%	48.1%
Wood	140	679	cords	35.4%	35.7%	33.3%	25.2%
Coal/Coke	7	34	tons	1.8%	1.9%	0.0%	0.9%
Other	3	--		0.8%	0.8%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	6
Average annual heating load per building:	1,838 MMBTUs
Estimated total heat energy consumption:	11,029 MMBTUs

C. Transportation Energy Use

Total vehicles:	802	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	11,214,000
Fossil Fuel:	463,852 gallons 56,246 MMBTUs	Ethanol:	48,875 gallons 3,886 MMBTUs	Total:	60,132 MMBTUs \$1,146,886
Registered EVs as of January 2017: 1		(8 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	2,098,830	7,161
Residential	3,505,262	11,960
Total	5,604,092	19,121
Average Residential Usage	7,985	27.24

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	419	444	470
% of households to be weatherized	20%	33%	33%
# of households to be weatherized	83	145	155
Estimated # of commercial establishments	6	7	7
% of commercial establishments to be weatherized	--%	-%	-%
# of commercial establishments to be weatherized	0	0	0

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	213	175	127
% of households with wood heat systems	51%	39%	27%
New efficient wood heat systems in commercial establishments	0	1	1
% commercial establishments with wood heat systems	7%	8%	11%
New heat pumps in residential units	63	134	169
% of households with heat pumps	15%	30%	36%
Estimated commercial establishments with heat pumps	0	0	0
% of commercial establishments with heat pumps	--%	--%	--%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	628	666	706
% of customers to upgrade electrical equipment	25%	37%	52%
# of customers to upgrade electrical equipment	158	249	365

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	902	1,015	1,142
Number of vehicles powered by electricity	92	295	635
% of vehicles powered by electricity	10%	29%	56%
Number of vehicles using bio-fuel blends	0%	0%	1%
% of vehicles using bio-fuel blends	0%	0%	0%

Troy

2015 Population estimates: **1,608**

Land (in acres): **23,341**

Population density: **44.1/square mile**

A. Residential Thermal Use

Total Households (HHs): **650**

Total owned: **564**, Avg. HH Size: **2.28**,
Percentage built before 1940: **33.0%**

Total rented: **89**, Avg. HH Size: **2.88**,
Percentage built before 1940: **68.5%**

Total vacant units for recreational or seasonal use: **136**

Total use for all occupied HHs: **82,191 MMBTUs**

Mean MMBTU per HH: **126**

Total use for all seasonal HHs: **875 MMBTUs**

Total cost for all occupied HHs: **\$1,076,020**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	103	112,083	gallons	15.8%	16.1%	13.5%	26.5%
Electricity	3	86,475	kWh	0.5%	0.0%	3.4%	1.2%
Fuel Oil	365	260,808	gallons	55.9%	53.5%	70.8%	54.1%
Wood	171	850	cords	26.2%	28.7%	10.1%	17.9%
Coal/Coke	2	10	tons	0.3%	0.0%	2.2%	0.3%
Other	6	--		0.9%	1.1%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	26
Average annual heating load per building:	775 MMBTUs
Estimated total heat energy consumption:	20,139 MMBTUs

C. Transportation Energy Use

Total vehicles:	1,158	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	16,212,000
Fossil Fuel:	670,587 gallons 81,315 MMBTUs	Ethanol:	66,322 gallons 5,618 MMBTUs	Total:	86,993 MMBTUs \$1,658,045
Registered EVs as of January 2017: 2		(16 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	4,202,641	14,339
Residential	5,534,878	18,885
Total	9,737,519	33,224
Average Residential Usage	6,613	22.56

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	689	730	774
% of households to be weatherized	19%	31%	31%
# of households to be weatherized	130	225	241
Estimated # of commercial establishments	28	29	31
% of commercial establishments to be weatherized	5%	9%	16%
# of commercial establishments to be weatherized	1	3	5

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	331	271	197
% of households with wood heat systems	48%	37%	25%
New efficient wood heat systems in commercial establishments	4	6	8
% commercial establishments with wood heat systems	16%	20%	25%
New heat pumps in residential units	98	207	263
% of households with heat pumps	14%	28%	34%
Estimated commercial establishments with heat pumps	2	3	5
% of commercial establishments with heat pumps	6%	11%	15%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	1,034	1,096	1,161
% of customers to upgrade electrical equipment	23%	34%	47%
# of customers to upgrade electrical equipment	236	371	543

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	1,305	1,468	1,652
Number of vehicles powered by electricity	138	440	947
% of vehicles powered by electricity	11%	30%	57%
Number of vehicles using bio-fuel blends	938	645	113
% of vehicles using bio-fuel blends	72%	44%	7%

Unified Towns & Gores

2015 Population estimates: **59**

Land (in acres): **103,831**

Population density: **0.04/square mile**

A. Residential Thermal Use

Total Households (HHs): **21**

Total owned: **21**, Avg. HH Size: **2.25**,
Percentage built before 1940: **0%**

Total rented: **0**, Avg. HH Size: **N/A**,
Percentage built before 1940: **N/A**

Total vacant units for recreational or seasonal use: **337**

Total use for all occupied HHs: **2,658 MMBTUs**

Mean MMBTU per HH: **127**

Total use for all seasonal HHs: **2,132 MMBTUs**

Total cost for all occupied HHs: **\$25,244**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	4	3,423	gallons	19.0%	19.0%	n/a	34.4%
Electricity	0	--	kWh	0.0%	0.0%	n/a	0.0%
Fuel Oil	4	2,249	gallons	19.0%	19.0%	n/a	19.9%
Wood	13	51	cords	61.9%	61.9%	n/a	45.7%
Coal/Coke	0	--	tons	0.0%	0.0%	n/a	0.0%
Other	0	--	--	0.0%	0.0%	n/a	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	n/a
Average annual heating load per building:	n/a MMBTUs
Estimated total heat energy consumption:	n/a MMBTUs

C. Transportation Energy Use

Total vehicles:	77	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	1,064,000
Fossil Fuel:	44,011 gallons 5,337 MMBTUs	Ethanol:	4,353 gallons 369 MMBTUs	Total:	5,705 MMBTUs \$108,818
Registered EVs as of January 2017: 1		(8 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	-	-
Residential	169,487	578
Total	169,487	578
Average Residential Usage	2,387	8.14

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	22	24	25
% of households to be weatherized	24%	40%	40%
# of households to be weatherized	5	9	10
Estimated # of commercial establishments	--	--	--
% of commercial establishments to be weatherized	--	--	--
# of commercial establishments to be weatherized	--	--	--

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	14	12	8
% of households with wood heat systems	63%	49%	34%
New efficient wood heat systems in commercial establishments	--	--	--
% commercial establishments with wood heat systems	--	--	--
New heat pumps in residential units	4	9	11
% of households with heat pumps	19%	37%	45%
Estimated commercial establishments with heat pumps	--	--	--
% of commercial establishments with heat pumps	--	--	--

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	33	35	38
% of customers to upgrade electrical equipment	29%	44%	60%
# of customers to upgrade electrical equipment	10	15	23

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	53	59	67
Number of vehicles powered by electricity	2	6	13
% of vehicles powered by electricity	4%	10%	19%
Number of vehicles using bio-fuel blends	13	9	2
% of vehicles using bio-fuel blends	24%	15%	2%

Victory

2015 Population estimates: **60**

Land (in acres): **27,572**

Population density: **1.4/square mile**

A. Residential Thermal Use

Total Households (HHs): **41**

Total owned: **39**, Avg. HH Size: **2.08**,
Percentage built before 1940: **23.1%**

Total rented: **2**, Avg. HH Size: **3.5**,
Percentage built before 1940: **0%**

Total vacant units for recreational or seasonal use: **43**

Total use for all occupied HHs: **5,781 MMBTUs**

Mean MMBTU per HH: **141**

Total use for all seasonal HHs: **310 MMBTUs**

Total cost for all occupied HHs: **\$51,913**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	8	7,306	gallons	19.5%	15.4%	100.0%	35.7%
Electricity	0	--	kWh	0.0%	0.0%	0.0%	0.0%
Fuel Oil	6	3,679	gallons	14.6%	15.4%	0.0%	15.8%
Wood	26	111	cords	63.4%	++7%	0.0%	48.4%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	1	--	--	2.4%	2.6%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	n/a
Average annual heating load per building:	n/a
Estimated total heat energy consumption:	n/a

C. Transportation Energy Use

Total vehicles:		Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	574,000
Fossil Fuel:	23,743 gallons 2,879 MMBTUs	Ethanol:	2,348 gallons 199 MMBTUs	Total:	3,078 MMBTUs \$58,705
Registered EVs as of January 2017:		(MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	N/A	N/A
Residential	276,638	944
Total	276,638	944
Average Residential Usage	3,790	12.93

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	43	46	49
% of households to be weatherized	20%	34%	34%
# of households to be weatherized	9	15	17
Estimated # of commercial establishments	--	--	--
% of commercial establishments to be weatherized	--	--	--
# of commercial establishments to be weatherized	--	--	--

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	23	19	14
% of households with wood heat systems	52%	41%	28%
New efficient wood heat systems in commercial establishments	--	--	--
% commercial establishments with wood heat systems	--	--	--
New heat pumps in residential units	7	14	18
% of households with heat pumps	16%	31%	37%
Estimated commercial establishments with heat pumps	--	--	--
% of commercial establishments with heat pumps	--	--	--

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	65	69	73
% of customers to upgrade electrical equipment	28%	41%	57%
# of customers to upgrade electrical equipment	18	28	42

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	46	52	58
Number of vehicles powered by electricity	11	34	72
% of vehicles powered by electricity	23%	65%	124%
Number of vehicles using bio-fuel blends	72	49	9
% of vehicles using bio-fuel blends	155%	95%	15%

Walden

2015 Population estimates: **925**

Land (in acres): **24,962**

Population density: **23.7/square mile**

A. Residential Thermal Use

Total Households (HHs): **384**

Total owned: **339**, Avg. HH Size: **2.58**,
Percentage built before 1940: **14.2%**

Total rented: **45**, Avg. HH Size: **2.73**,
Percentage built before 1940: **37.8%**

Total vacant units for recreational or seasonal use: **143**

Total use for all occupied HHs: **54,795 MMBTUs**

Mean MMBTU per HH: **143**

Total use for all seasonal HHs: **1,066 MMBTUs**

Total cost for all occupied HHs: **\$588,131**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	65	66,937	gallons	1.69%	14.2%	37.8%	28.9%
Electricity	0	--	KwH	0.0%	0.0%	0.0%	0.0%
Fuel Oil	141	98,305	gallons	36.7%	36.0%	42.2%	37.3%
Wood	178	876	cords	46.4%	49.9%	20.0%	33.8%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	0	--		0.0%	0.0%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	3
Average annual heating load per building:	1,648 MMBTUs
Estimated total heat energy consumption:	4,945 MMBTUs

C. Transportation Energy Use

Total vehicles:	709	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	9,926,000
Fossil Fuel:	410,575 gallons 49,786 MMBTUs	Ethanol:	40,606 gallons 3,440 MMBTUs	Total:	53,226 MMBTUs \$1,015,159
Registered EVs as of January 2017: 0		0 (MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	151,054	515
Residential	2,978,353	10,162
Total	3,129,407	10,678
Average Residential Usage	5,244	17.89

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	407	431	457
% of households to be weatherized	21%	34%	35%
# of households to be weatherized	85	148	158
Estimated # of commercial establishments	3	3	4
% of commercial establishments to be weatherized	3%	4%	7%
# of commercial establishments to be weatherized	0	0	0

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	218	179	130
% of households with wood heat systems	54%	42%	28%
New efficient wood heat systems in commercial establishments	0	0	0
% commercial establishments with wood heat systems	--%	--%	--%
New heat pumps in residential units	65	137	174
% of households with heat pumps	16%	32%	38%
Estimated commercial establishments with heat pumps	0	0	0
% of commercial establishments with heat pumps	--%	--%	--%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	611	647	686
% of customers to upgrade electrical equipment	29%	42%	59%
# of customers to upgrade electrical equipment	174	274	402

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	798	897	1,009
Number of vehicles powered by electricity	102	325	700
% of vehicles powered by electricity	13%	36%	69%
Number of vehicles using bio-fuel blends	0%	0%	1%
% of vehicles using bio-fuel blends	0%	0%	0%

Waterford

2015 Population estimates: **1,278**

Land (in acres): **25,464**

Population density: **32.1/square mile**

A. Residential Thermal Use

Total Households (HHs): **532**

Total owned: **499**, Avg. HH Size: **2.82**,
Percentage built before 1940: **14.2%**

Total rented: **33**, Avg. HH Size: **2.0**,
Percentage built before 1940: **9.1%**

Total vacant units for recreational or seasonal use: **72**

Total use for all occupied HHs: **76,224 MM BTUs**

Mean MMBTU per HH: **143**

Total use for all seasonal HHs: **536 MM BTUs**

Total cost for all occupied HHs: **\$894,265**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	79	94,116	gallons	14.8%	15.8%	0.0%	26.7%
Electricity	0	--	KwH	0.0%	0.0%	0.0%	0.0%
Fuel Oil	262	194,095	gallons	49.2%	47.3%	78.8%	48.4%
Wood	184	980	cords	34.6%	35.5%	21.2%	24.9%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	7	--	-	1.3%	1.4%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	15
Average annual heating load per building:	821 MMBTUs
Estimated total heat energy consumption:	12,318 MMBTUs

C. Transportation Energy Use

Total vehicles:	1,027	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	14,378,000
Fossil Fuel:	594,726 gallons 72,116 MMBTUs	Ethanol:	58,819 gallons 4,983 MMBTUs	Total:	77,098 MMBTUs \$1,470,477
Registered EVs as of January 2017:		(MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	2,029,941	6,926
Residential	4,400,707	15,015
Total	6,430,649	21,941
Average Residential Usage	7,409	25.28

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	564	598	634
% of households to be weatherized	21%	35%	35%
# of households to be weatherized	121	210	224
Estimated # of commercial establishments	16	17	18
% of commercial establishments to be weatherized	5%	8%	15%
# of commercial establishments to be weatherized	1	1	3

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	310	255	185
% of households with wood heat systems	55%	43%	29%
New efficient wood heat systems in commercial establishments	2	3	4
% commercial establishments with wood heat systems	15%	18%	24%
New heat pumps in residential units	92	195	247
% of households with heat pumps	16%	33%	39%
Estimated commercial establishments with heat pumps	1	2	3
% of commercial establishments with heat pumps	6%	10%	14%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	846	897	950
% of customers to upgrade electrical equipment	29%	44%	60%
# of customers to upgrade electrical equipment	249	391	573

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	1,155	1,300	1,462
Number of vehicles powered by electricity	145	464	998
% of vehicles powered by electricity	13%	36%	68%
Number of vehicles using bio-fuel blends	0%	0%	1%
% of vehicles using bio-fuel blends	0%	0%	0%

Westfield

2015 Population estimates: **518**

Land (in acres): **25,608**

Population density: **12.9/square mile**

A. Residential Thermal Use

Total Households (HHs): **217**

Total owned: **191**, Avg. HH Size: **2.46**,
Percentage built before 1940: **11.0%**

Total rented: **26**, Avg. HH Size: **2.5**,
Percentage built before 1940: **38.5%**

Total vacant units for recreational or seasonal use: **117**

Total use for all occupied HHs: **27,949 MMBTUs**

Mean MMBTU per HH: **129**

Total use for all seasonal HHs: **798 MMBTUs**

Total cost for all occupied HHs: **\$350,555**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	62	59,844	gallons	28.6%	25.1%	53.8%	43.4%
Electricity	7	148,424	KwH	3.2%	0.0%	26.9%	6.4%
Fuel Oil	58	37,975	gallons	26.7%	27.7%	19.2%	24.2%
Wood	87	404	cords	40.1%	45.5%	0.0%	26.1%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	0	--		1.4%	1.6%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	7
Average annual heating load per building:	384 MMBTUs
Estimated total heat energy consumption:	2,691 MMBTUs

C. Transportation Energy Use

Total vehicles:	450	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	6,300,000
Fossil Fuel:	260,951 gallons 31,599 MMBTUs	Ethanol:	25,773 gallons 2,183 MMBTUs	Total:	33,782 MMBTUs \$644,318
Registered EVs as of January 2017: 2		(16 MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	991,231	3,382
Residential	1,954,730	6,670
Total	2,945,961	10,052
Average Residential Usage	6,052	20.65

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	230	244	258
% of households to be weatherized	21%	34%	35%
# of households to be weatherized	48	84	89
Estimated # of commercial establishments	7	8	8
% of commercial establishments to be weatherized	11%	18%	32%
# of commercial establishments to be weatherized	1	1	3

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	124	102	74
% of households with wood heat systems	54%	42%	28%
New efficient wood heat systems in commercial establishments	2	3	4
% commercial establishments with wood heat systems	33%	40%	53%
New heat pumps in residential units	37	78	98
% of households with heat pumps	16%	32%	38%
Estimated commercial establishments with heat pumps	1	2	3
% of commercial establishments with heat pumps	13%	22%	32%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	345	366	388
% of customers to upgrade electrical equipment	26%	38%	53%
# of customers to upgrade electrical equipment	89	140	205

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	509	572	644
Number of vehicles powered by electricity	52	166	358
% of vehicles powered by electricity	10%	29%	56%
Number of vehicles using bio-fuel blends	354	244	43
% of vehicles using bio-fuel blends	70%	43%	7%

Westmore

2015 Population estimates: **340**

Land (in acres): **24,048**

Population density: **9.0/square mile**

A. Residential Thermal Use

Total Households (HHs): **173**

Total owned: **158**, Avg. HH Size: **2.06**,
Percentage built before 1940: **19.0%**

Total rented: **15**, Avg. HH Size: **1.87**,
Percentage built before 1940: **46.7%**

Total vacant units for recreational or seasonal use: **436**

Total use for all occupied HHs: **18,428 MMBTUs**

Mean MMBTU per HH: **107**

Total use for all seasonal HHs: **2,425 MMBTUs**

Total cost for all occupied HHs: **\$239,453**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	36	31,541	gallons	20.8%	20.9%	20.0%	33.5%
Electricity	2	48,144	KwH	1.2%	1.3%	0.0%	3.0%
Fuel Oil	76	42,718	gallons	43.9%	40.5%	80.0%	39.8%
Wood	56	230	cords	32.4%	35.4%	0.0%	21.8%
Coal/Coke	3	13	tons	1.7%	1.9%	0.0%	1.9%
Other	--	--		0.0%	0.0%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	5
Average annual heating load per building:	568 MMBTUs
Estimated total heat energy consumption:	2,841 MMBTUs

C. Transportation Energy Use

Total vehicles:	305	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	4,270,000
Fossil Fuel:	176,623 gallons 21,417 MMBTUs	Ethanol:	17,468 gallons 1,480 MMBTUs	Total:	22,897 MMBTUs \$436,705
Registered EVs as of January 2017: 0		0 (MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	N/A	N/A
Residential	328,681	1,121
Total	328,681	1,121
Average Residential Usage	3,960	13.51

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	183	194	206
% of households to be weatherized	23%	38%	39%
# of households to be weatherized	43	74	80
Estimated # of commercial establishments	5	6	6
% of commercial establishments to be weatherized	7%	12%	21%
# of commercial establishments to be weatherized	0	1	1

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	111	91	66
% of households with wood heat systems	60%	47%	32%
New efficient wood heat systems in commercial establishments	1	2	2
% commercial establishments with wood heat systems	22%	27%	35%
New heat pumps in residential units	33	70	88
% of households with heat pumps	18%	36%	43%
Estimated commercial establishments with heat pumps	0	1	1
% of commercial establishments with heat pumps	9%	15%	21%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	725	769	815
% of customers to upgrade electrical equipment	9%	13%	19%
# of customers to upgrade electrical equipment	66	103	151

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	343	386	434
Number of vehicles powered by electricity	38	122	263
% of vehicles powered by electricity	11%	32%	61%
Number of vehicles using bio-fuel blends	261	179	31
% of vehicles using bio-fuel blends	76%	46%	7%

Wheelock

2015 Population estimates: **799**

Land (in acres): **25,613**

Population density: **20/square mile**

A. Residential Thermal Use

Total Households (HHs): **324**

Total owned: **279**, Avg. HH Size: **2.77**,
Percentage built before 1940: **8.6%**

Total rented: **45**, Avg. HH Size: **1.98**,
Percentage built before 1940: **8.9%**

Total vacant units for recreational or seasonal use: **105**

Total use for all occupied HHs: **45,706 MMBTUs**

Mean MMBTU per HH: **141**

Total use for all seasonal HHs: **809 MMBTUs**

Total cost for all occupied HHs: **\$463,813**

Fuel Type: Space Heating	HHs	Total annual avg. use		% Use: (All HHs)	% of Use: Owned	% of Use: Rented	% of Cost (All HHs)
Tank/LP/etc. Gas	45	41,467	gallons	13.9%	10.8%	33.3%	22.7%
Electricity	0	--	KwH	0.0%	0.0%	0.0%	0.0%
Fuel Oil	127	86,809	gallons	39.2%	39.1%	40.0%	41.7%
Wood	148	726	cords	45.7%	48.7%	26.7%	35.6%
Coal/Coke	0	--	tons	0.0%	0.0%	0.0%	0.0%
Other	4	--		1.2%	1.4%	0.0%	0.0%

B. Commercial Thermal Energy Use

Estimated number of commercial buildings, per Vt. Dept. of Labor:	2
Average annual heating load per building:	235 MMBTUs
Estimated total heat energy consumption:	469 MMBTUs

C. Transportation Energy Use

Total vehicles:	611	Avg. annual vehicle miles travelled (VMTs) per vehicle:	14,000	Total annual VMTs:	8,554,000
Fossil Fuel:	353,825 gallons 42,904 MMBTUs	Ethanol:	34,994 gallons 2,964 MMBTUs	Total:	45,869 MMBTUs \$874,841
Registered EVs as of January 2017:0		0 (MMBTUs annually)			

D. Electricity Energy Use

Usage in 2016	KWh	MMBTUs
Commercial & Industrial	200,479	684
Residential	2,909,430	9,927
Total	3,109,909	10,611
Average Residential Usage	8,409	28.69

E. Thermal Residential and Commercial Efficiency Targets

	2025	2035	2050
Estimated number of households	343	364	386
% of households to be weatherized	21%	34%	34%
# of households to be weatherized	71	124	132
Estimated # of commercial establishments	2	2	2
% of commercial establishments to be weatherized	18%	29%	52%
# of commercial establishments to be weatherized	0	1	1

F. Thermal Fuel-Switching, Residential & Commercial Targets

	2025	2035	2050
New efficient wood heat systems in residences	183	150	109
% of households with wood heat systems	53%	41%	28%
New efficient wood heat systems in commercial establishments	1	2	2
% commercial establishments with wood heat systems	55%	67%	91%
New heat pumps in residential units	54	115	146
% of households with heat pumps	16%	32%	38%
Estimated commercial establishments with heat pumps	0	1	1
% of commercial establishments with heat pumps	21%	37%	54%

G. Electrical Efficiency Targets

	2025	2035	2050
Estimated # of customers	515	546	579
% of customers to upgrade electrical equipment	28%	42%	58%
# of customers to upgrade electrical equipment	145	227	333

H. Fuel-Switching, Transportation Targets

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	687	773	870
Number of vehicles powered by electricity	84	270	580
% of vehicles powered by electricity	12%	35%	67%
Number of vehicles using bio-fuel blends	0%	0%	1%
% of vehicles using bio-fuel blends	0%	0%	0%