APPENDIX H

APPENDIX H - REGIONAL TARGET SUMMARY

1A. Current Municipal Transportation Energy Use

Transportation Data	Municipal Data
Total # of Vehicles (ACS 2011-2015)	42,471
Average Miles per Vehicle (Vtrans)	11,356
Total Miles Traveled	482,300,676
Average Gallons Use per Vehicle per Year (VTrans)	19
Total Gallons Use per Year	25,930,144
Transportation BTUs (Billion)	3,122
Average Cost per Gallon of Gasoline (RPC)	2
Gasoline Cost per Year	59,898,632

This table uses data from the American Community Survey (ACS) and Vermont Agency of Transportation (VTrans) to calculate current transportation energy use and energy costs.

1B. Current Municipal Residential Heating Energy Use

Fuel Source	Municipal Households (ACS 2011-2015)	% of Municipal Households	Municipal Square Footage Heated	Municipal BTU (in Billions)
Natural Gas	4,414	20.4%	7,181,408	430,884,480,000
Propane	3,051	14.1%	5,347,984	320,879,040,000
Electricity	470	2.2%	678,048	40,682,880,000
Fuel Oil	9,328	43.1%	16,170,176	970,210,560,000
Coal	17	0.1%	27,440	1,646,400,000
Wood	4,008	18.5%	7,353,856	441,231,360,000
Solar	0	0.0%	0	0
Other	341	1.6%	599,984	35,999,040,000
No Fuel	21	0.1%	33,648	2,018,880,000
Total	21,650	100.0%	37,392,544	2,243,552,640,000

This table displays data from the ACS that estimates current municipal residential heating energy use.

1C. Current Municipal Commercial Energy Use

	Commercial Establishments in Municipality (VT DOL)	Estimated Thermal Energy BTUs per Commercial Establishment (in Billions) (VDPS)	Estimated Thermal Energy BTUs by Commercial Establishments in Municipality (in Billions)
Municipal Commercial Energy Use	1,123	0.725	28

The table uses data available from the Vermont Department of Labor (VT DOL) and the Vermont Department of Public Service (DPS) to estimate current municipal commercial establishment energy use in the municipality.

1D. Current Electricity Use

Use Sector	Current Electricity Use
Residential (MWh)	194,619
Commercial and Industrial (MWh)	288,132
Total (MWh)	482,751

This table displays current electricity use within the municipality. This data is available from Efficiency Vermont (EVT).

1E. Residential Thermal Efficiency Targets

	2025	2035	2050
"Residential - Increased Efficiency and Conservation (% of municipal households to be weatherized)"	4%	14%	57%

This table displays targets for thermal efficiency for residential structures based on a methodology developed by DPS using data available from the regional Long-range Energy Alternatives Planning (LEAP) analysis and ACS. The data in this table represents the percentage of municipal households that will need to be weatherized in the target years.

1F. Commercial Thermal Efficiency Targets

	2025	2035	2050
"Commercial - Increased Efficiency and Conservation (% of commercial establishments to be weatherized)"	24%	32%	64%

This table shows the same information as Table 1E, but sets a target for commercial thermal efficiency. Information from the VT DOL is required to complete this target.

1G. Thermal Fuel Switching Targets (Residential and Commercial) - Wood Systems

	2025	2035	2050
New Efficient Wood Heat Systems (in units)	46	89	720

This table provides a target for new wood heating systems for residential and commercial structures in the municipality for each target year. This target was calculated using data from LEAP and ACS.

1H. Thermal Fuel Switching Targets (Residential and Commercial) - Heat Pumps

	2025	2035	2050
New Heat Pumps (in units)	3,203	6,407	11,603

This table provides a target for new heat pump systems for residential and commercial structures in the municipality for each target year. This target was calculated using data from LEAP and ACS.

1I. Electricity Efficiency Targets

	2025	2035	2050
Increase Efficiency and Conservation (% of BTUs)	25.2%	48.3%	100.7%

Data in this table displays a target for increased electricity efficiency and conservation during the target years. These targets were developed using regional LEAP analysis.

1J. Use of Renewables - Transportation

	2025	2035	2050
Renewable Energy Use - Transportation (% of BTUs)	9.6%	31.3%	90.3%

This data displays targets for the percentage of transportation energy use coming from renewable sources during each target year. This data was developed using the LEAP analysis.

1K. Use of Renewables - Heating

	2025	2035	2050
Renewable Energy Use - Heating (% of BTUs)	48.3%	61.6%	87.7%

This data displays targets for the percentage of heating energy use coming from renewable sources during each target year. This data was developed using information from the LEAP analysis.

1L. Use of Renewables - Electricity

	2025	2035	2050
Renewable Energy Use - Electricity (MWh)	115,169.5	230,338.9	348,998.4

This data displays targets for MWh of electricity generation coming from renewable sources within the municipality during each target year. This data was developed using information from the regional planning commission and DPS. This data is the same as the data in Table 1Q.

1M. Transportation Fuel Switching Target - Electric Vehicles

	2025	2035	2050
Electric Vehicles	3,716	27,828	62,889

This tables displays a target for switching from fossil fuel based vehicles (gasoline and diesel) to electric vehicles. This target is calculated on Worksheet 2. by using LEAP and ACS data.

1N. Transportation Fuel Switching Target - Biodiesel Vehicles

	2025	2035	2050
Biodiesel Vehicles	6,546	13,034	24,989

This tables displays a target for switching from fossil fuel based vehicles to biodiesel-powered vehicles. This target is calculated on Worksheet 2. by using LEAP and ACS data.

1O. Existing Renewable Generation

Renewable Type	MW	MWh
Solar	9.49	11,638.54
Wind	5.26	16,127.16
Hydro	41.38	144,995.52
Biomass	2.31	9,429.57
Other	0	0
Total Existing Renewable Generation	58.44	182,190.79

Table 1O shows existing renewable generation in the municipality, in MW and MWh, based on information available from the Vermont Department of Public Service.

1P. Renewable Generation Potential

Renewable Type	MW	MWh
Rooftop Solar	29	35,351
Ground-mounted Solar	3,455	4,237,037
Wind	3,111	9,536,793
Hydro	1	3,574
Biomass and Methane	0	0
Other	0	0
Total Renewable Generation Potential	6,595	13,812,755

Renewable generation potential is based on mapping completed by the Regional Planning Commission that is based on the Municipal Determination Standards and associated guidance documents developed by DPS. The renewable generation potential is expressed in MW and MWh by the type of renewable resource (solar, wind, hydro, etc.).

1Q. Renewable Generation Targets

	2025	2035	2050
Total Renewable Generation Target (in MWh)	115,169.47	230,338.94	348,998.40

Renewable generation targets for municipalities were developed by the regional planning commission.

1R. Sufficient Land

	Y/N
Solar	Y
Wind	Y

This table shows whether or not there is sufficient land in the municipality to meet the renewable generation targets based on the renewable generation potential in the municipality.