

# Utility Facts



# 2013

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#### Note From The Commissioner

I am pleased to present the 2013 edition of *Utility Facts*. This publication helps serve our public advocacy role by providing the public with information on energy use in Vermont and summary statistics for our regulated utilities. Currently, and going forward, *Utility Facts* will be an annual publication providing up to date energy and utility data in an easy to access format.

Regular readers of *Utility Facts* will notice a few changes and improvements. The 2013 publication now includes a section on total energy use and consumption, a section devoted to electric and thermal efficiency, and a section profiling the regulated utility sector. These additions will join existing sections devoted to electricity, natural gas, telecommunications, and water. Each section includes data tables, charts, and references that we hope will provide a common set of energy and telecommunication information.

As always, we invite comments, suggestions, ideas to improve *Utility Facts* to further public understanding of energy and Utility trends in our State.

Christopher Recchia, Commissioner  
Public Service Department

## FORWARD & INTRODUCTION

The Public Service Department (PSD) is an agency within the executive branch of Vermont state government, charged with representing the public interest in energy, telecommunications, water, and wastewater utility matters.

The mission of the PSD is to serve all citizens of Vermont through public advocacy, planning, programs, and other actions that meet the public's need for least cost, environmentally sound, efficient, reliable, secure, sustainable, and safe energy, telecommunications, and regulated utility systems in the state for the short and long term.

In particular, The Department carries out this mission by:

Representing the public interest in utility cases before the Public Service Board, federal regulatory agencies, and state and federal courts.

Advocating on behalf of utility customers, including resolving utility customer complaints.

Providing long range planning for the state's energy needs through the Vermont Electric Plan and the Comprehensive Energy Plan.

Ensuring all Vermonters share in the benefits of modern communications through the Vermont Telecommunications Plan

Promoting energy efficiency.

Administering federal energy programs.

*Utility Facts* contributes to the Department's advocacy responsibilities by providing the public with up-to-date information regarding the activities of Vermont's regulated public utilities and uses of energy. *Utility Facts* also serves as a complement to the Department's Biennial Report to the Legislature.

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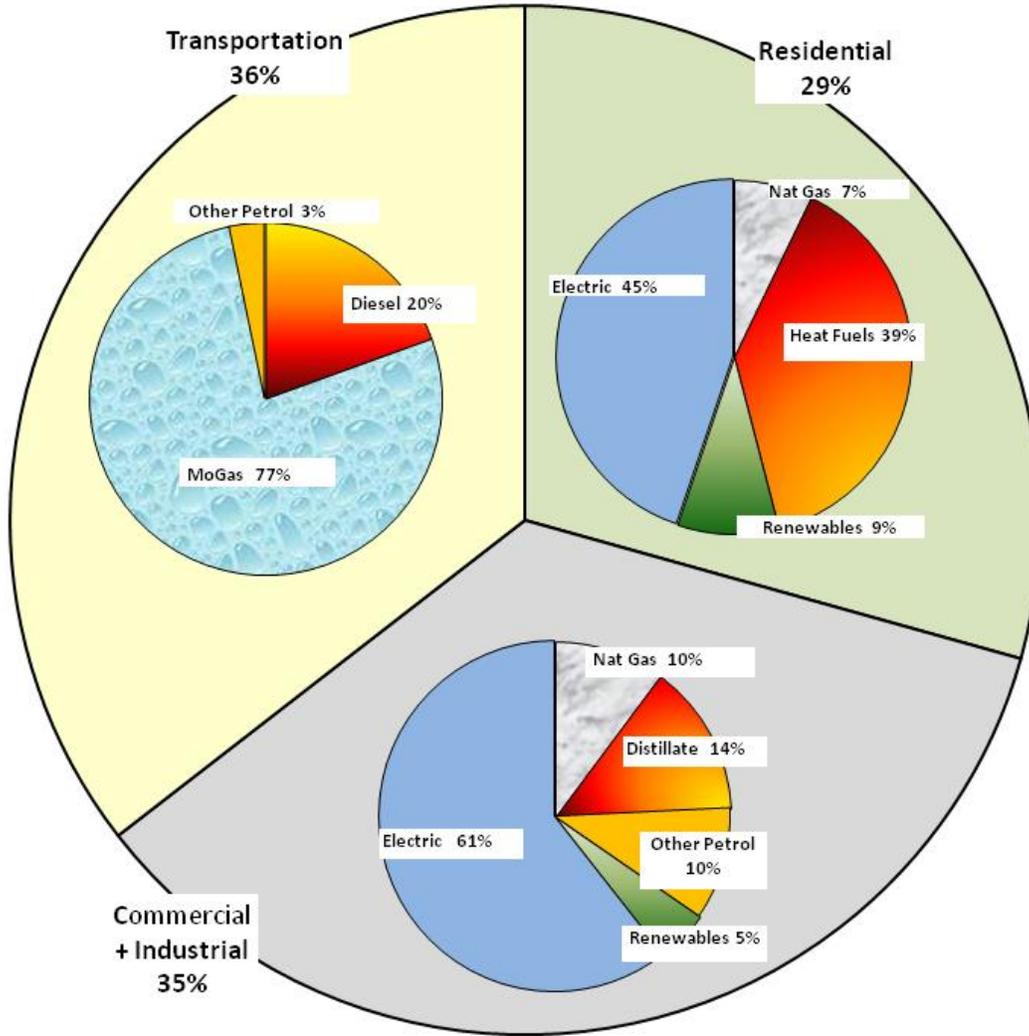
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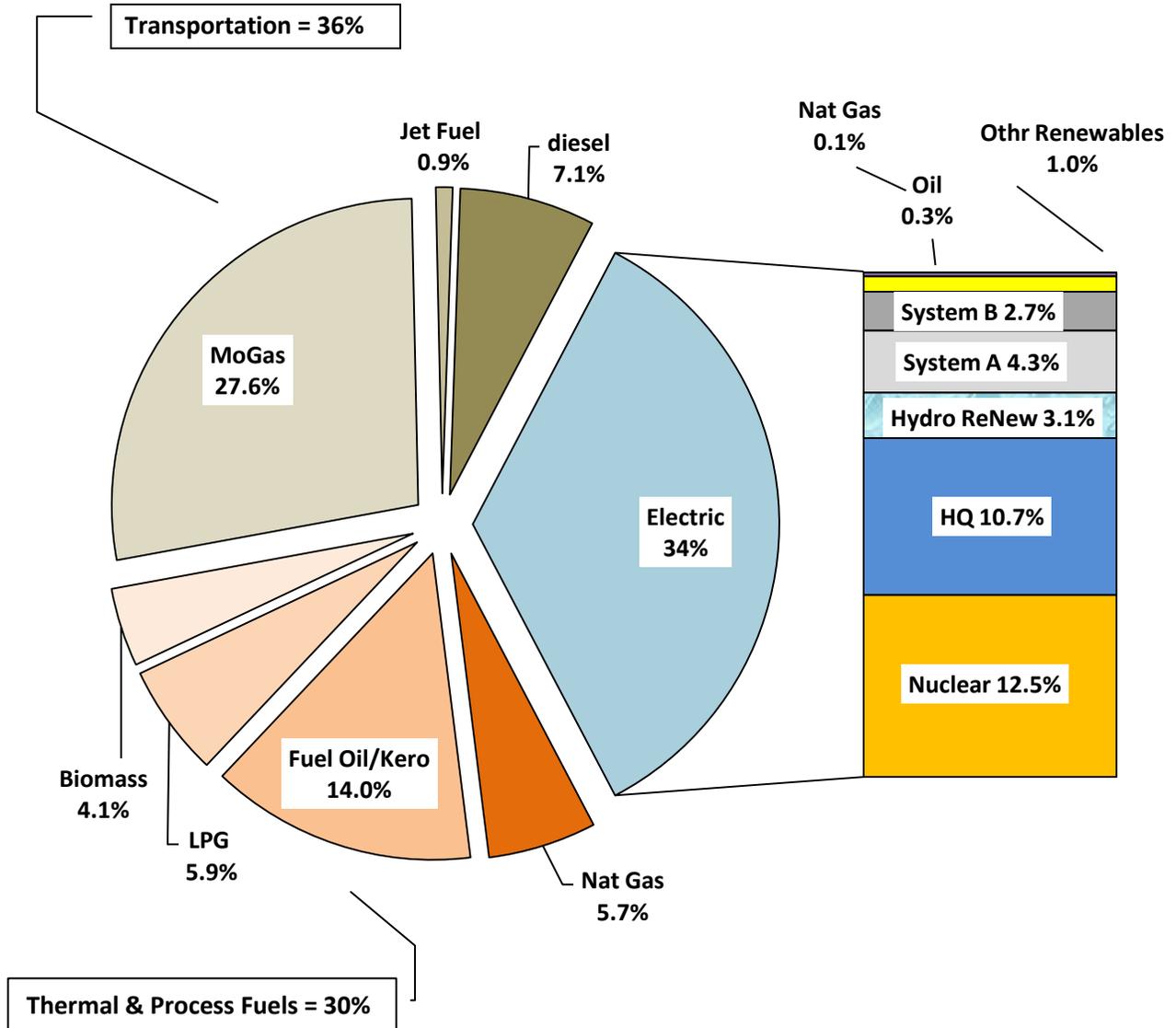
# Total Energy

Vermont Total Energy End Use, By Source, 2010

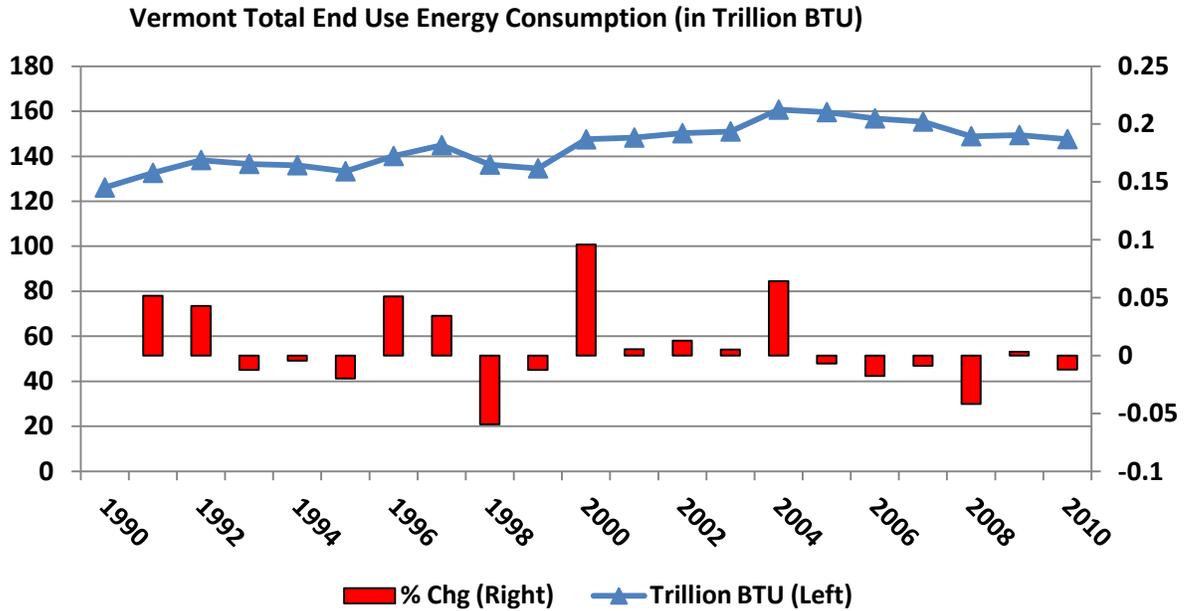


Source: EIA

Vermont Primary Energy Consumption, By Source, 2010



Source: EIA, PSD, Vermont utilities

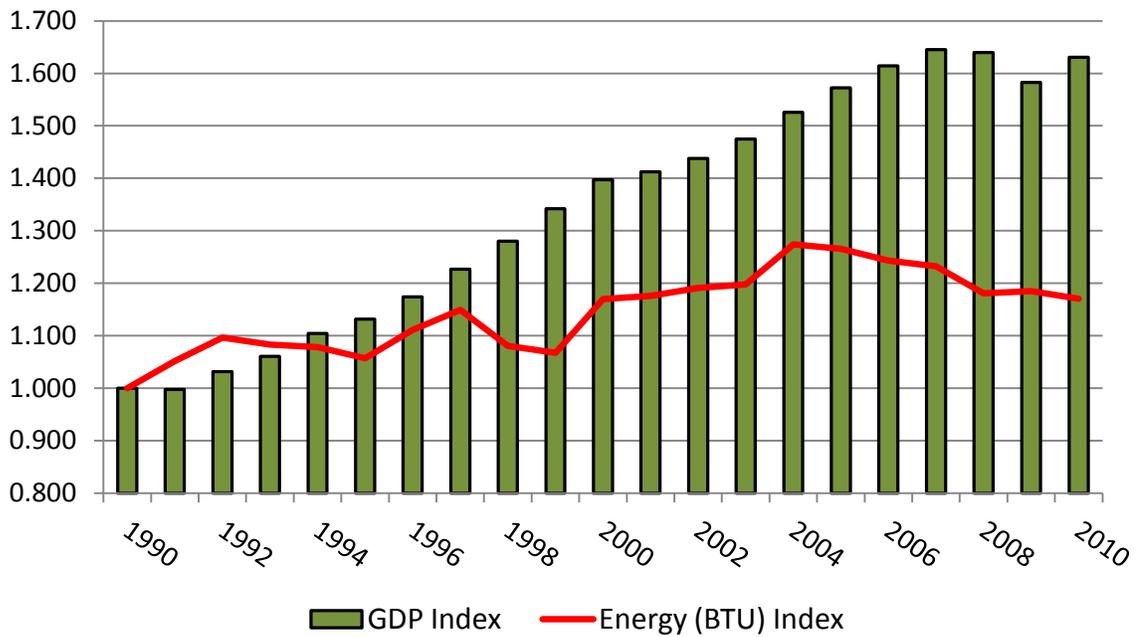


**Vermont Total End Use Energy Consumption (in Trillion BTU)**

Year	Nat. Gas	Petroleum	Electricity		Total
			Renewables (incl losses)		
1990	6.0	72.0	4.5	43.5	126.1
1991	5.9	77.5	5.4	43.6	132.6
1992	6.8	82.0	5.3	43.8	138.3
1993	7.0	81.6	5.5	42.4	136.6
1994	7.1	80.6	5.6	42.6	136.0
1995	7.1	80.3	5.9	39.8	133.3
1996	7.4	84.6	5.7	42.4	140.1
1997	8.3	86.4	5.3	42.1	144.9
1998	7.6	82.5	4.6	41.4	136.3
1999	7.9	83.5	4.4	36.8	134.6
2000	9.5	87.3	5.1	45.6	147.5
2001	7.9	88.8	4.3	47.3	148.3
2002	8.4	84.4	3.0	54.3	150.2
2003	8.4	85.9	2.9	53.7	151.0
2004	8.7	95.3	3.4	53.3	160.7
2005	8.4	90.9	7.0	53.3	159.6
2006	8.0	89.3	6.8	52.6	156.8
2007	8.8	87.9	6.0	52.6	155.4
2008	8.6	81.9	6.6	51.7	148.9
2009	8.6	85.3	6.4	49.0	149.4
2010	8.4	81.8	6.5	50.8	147.6
Growth Rate(s)					
2000-10	-1.22%	-0.65%	2.46%	1.09%	0.01%
1990-2010	1.70%	0.64%	1.86%	0.78%	0.79%

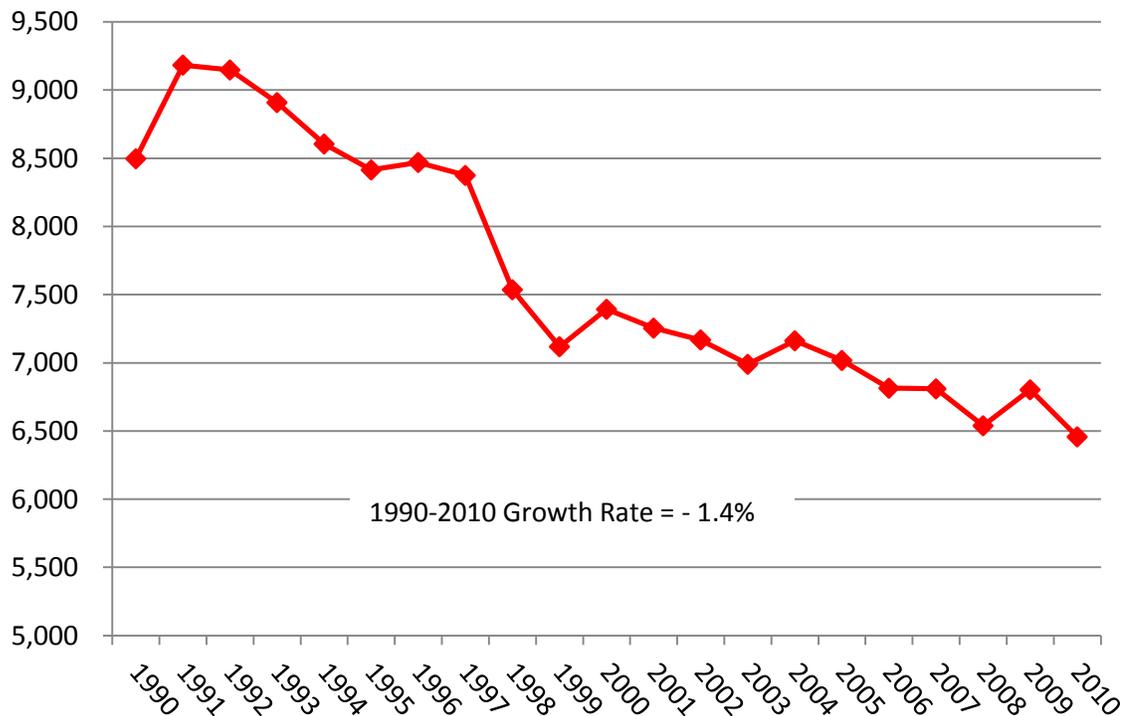
Source: EIA

Index: Vermont Gross Domestic Product & Total Energy, 1990 = 1.00



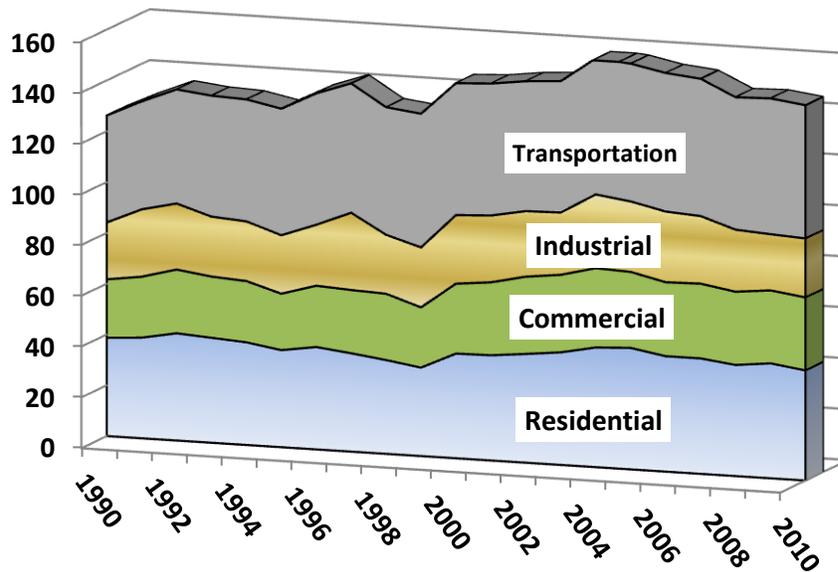
Source: EIA, Bureau of Economic Analysis, US Dept of Commerce

Energy Intensity: BTU Per \$ (Real) Gross Domestic Product, Vermont



Source: EIA, Bureau of Economic Analysis, US Dept of Commerce

Energy Consumption (in Trillion BTU) By End Use Sector, Vermont

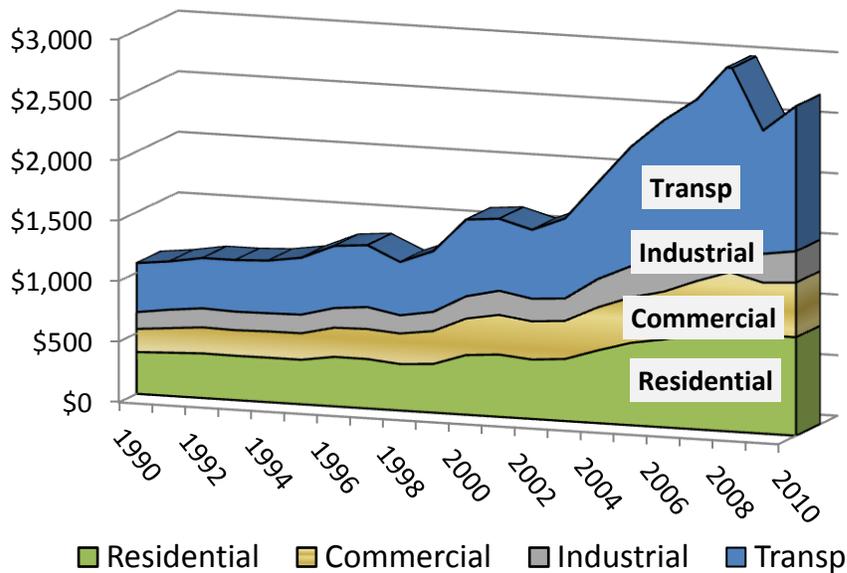


Energy Consumption (in Trillion BTU) By End Use Sector, Vermont

	Residential	Commercial	Industrial	Transportation	Total BTU
1990	38.7	23.0	22.4	42.1	126.2
1991	39.6	24.0	26.5	42.5	132.6
1992	42.2	25.1	26.0	44.9	138.2
1993	41.3	24.1	23.6	47.6	136.6
1994	40.4	24.1	23.5	48	136.0
1995	38.2	22.2	23.0	49.8	133.2
1996	40.3	24.1	24.0	51.7	140.1
1997	38.7	24.9	30.4	50.9	144.9
1998	36.9	26.1	23.2	50.2	136.4
1999	34.8	23.7	23.6	52.6	134.7
2000	41.2	27.5	27.0	51.9	147.6
2001	41.4	28.7	26.3	51.9	148.3
2002	42.8	30.4	25.8	51.1	150.1
2003	44.3	30.5	24.5	51.7	151.0
2004	47.1	31.2	29.0	53.5	160.8
2005	47.8	29.9	27.7	54.2	159.6
2006	45.4	29.1	27.8	54.5	156.8
2007	45.4	29.4	26.6	54	155.4
2008	43.7	28.8	24.4	52.1	149.0
2009	45.2	28.7	22.1	53.4	149.4
2010	43.3	28.7	23.2	52.4	147.6
<i>Growth Rate(s):</i>					
1990-2010	2.5%	4.9%	0.8%	4.9%	3.5%

Source: EIA

End Use Energy Expenditures (Millions \$), 1990-2010, Vermont

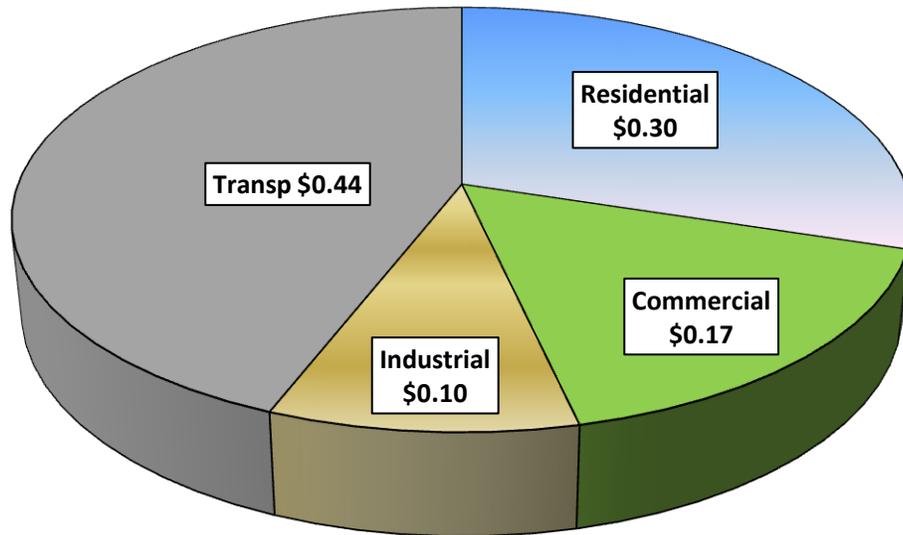


End Use Energy Expenditures (Millions \$), 1990-2010, Vermont

	Total	Residential	Commercial	Industrial	Transp
1990	\$1,079.2	\$345.1	\$190.8	\$138.5	\$404.8
1991	\$1,110.2	\$357.0	\$202.7	\$151.7	\$398.8
1992	\$1,155.4	\$368.4	\$215.1	\$156.6	\$415.3
1993	\$1,156.0	\$365.9	\$211.4	\$152.2	\$426.5
1994	\$1,168.7	\$367.7	\$216.6	\$149.6	\$434.8
1995	\$1,209.3	\$367.5	\$218.6	\$153.4	\$469.8
1996	\$1,324.5	\$409.0	\$240.4	\$161.8	\$513.3
1997	\$1,348.1	\$408.1	\$248.0	\$180.9	\$511.1
1998	\$1,226.2	\$383.9	\$252.2	\$149.8	\$440.3
1999	\$1,332.6	\$401.8	\$271.5	\$158.2	\$501.1
2000	\$1,611.2	\$492.6	\$301.1	\$184.0	\$633.6
2001	\$1,635.3	\$514.1	\$327.3	\$199.2	\$594.6
2002	\$1,560.7	\$490.2	\$315.4	\$186.3	\$568.8
2003	\$1,671.3	\$512.4	\$314.5	\$184.8	\$659.7
2004	\$1,988.0	\$600.9	\$355.2	\$233.5	\$798.4
2005	\$2,298.1	\$680.1	\$374.8	\$257.9	\$985.3
2006	\$2,534.4	\$725.4	\$394.3	\$291.6	\$1,123.1
2007	\$2,723.5	\$789.6	\$435.0	\$293.8	\$1,205.1
2008	\$3,031.9	\$849.2	\$465.5	\$302.6	\$1,414.5
2009	\$2,499.5	\$814.7	\$431.4	\$236.8	\$1,016.6
2010	\$2,719.1	\$811.5	\$451.2	\$258.8	\$1,197.6
<i>Growth Rate(s) 1990-2010</i>	4.7%	4.4%	4.4%	3.2%	5.6%

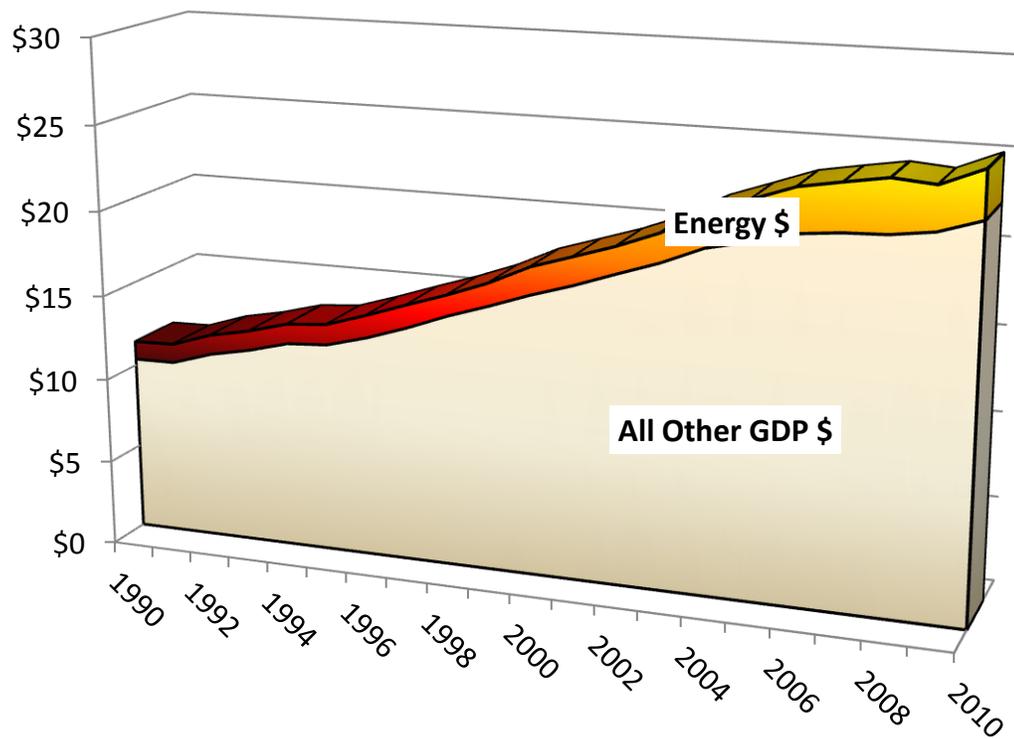
Source: EIA

The Vermont Energy Dollar by Sector, 2010



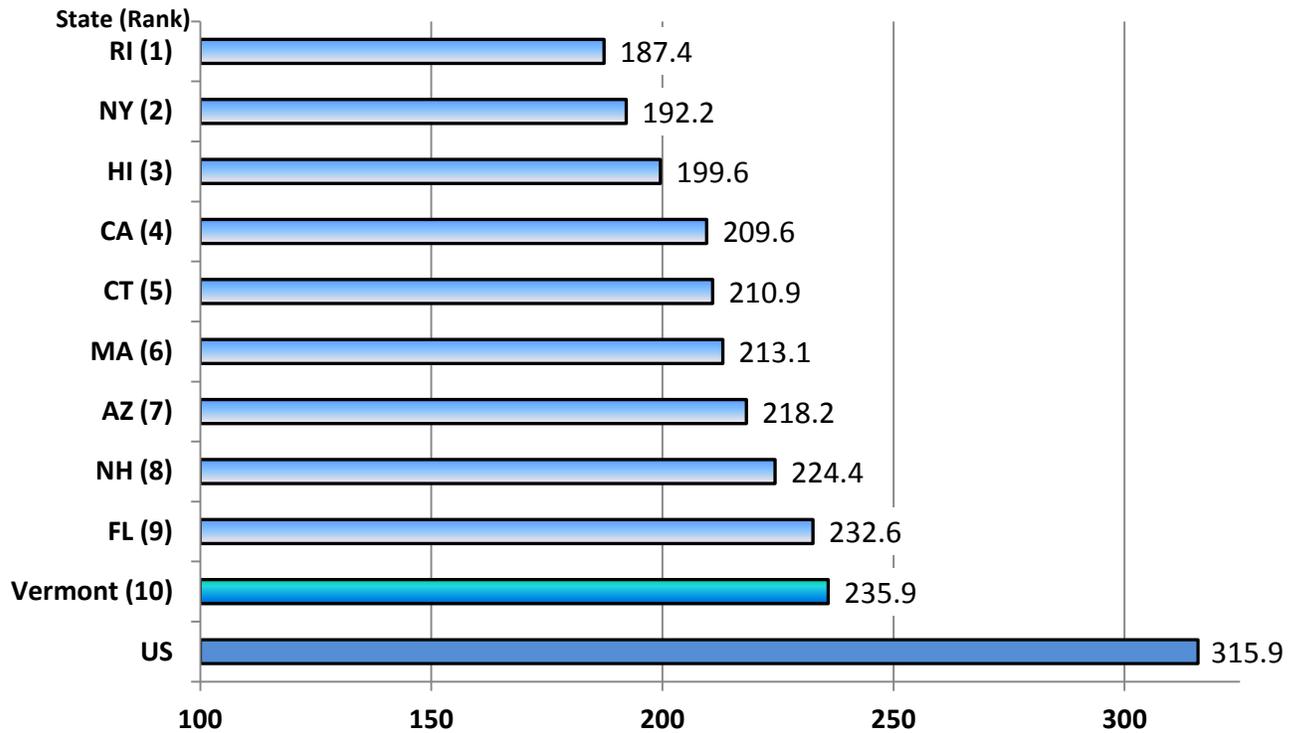
Source: EIA, PSD

End Use Energy Expenditures & Gross Domestic Product (Billions current \$), Vermont



Source: EIA, Bureau of Economic Analysis, US Dept of Commerce

Per Capita Energy Consumption (in Millions of BTU per person), US Average & Lowest 10 States, 2010



Source: EIA, PSD

**Carbon Intensity\* of the Energy Supply, New England, US**  
(in kilograms of energy-related carbon dioxide per million BTU)

State	Percent Chg			
	2000	2005	2009	2000-09
New Hampshire	48.6	47.3	44.0	-9.5%
Vermont	37.3	39.3	34.0	-8.8%
Connecticut	50.4	51.5	47.2	-6.3%
Maine	45.5	45.2	43.2	-4.9%
Massachusetts	61.2	62.4	58.8	-3.9%
Rhode Island	57.6	59.7	55.9	-2.9%
<b>U.S. Average</b>	<b>59.1</b>	<b>59.5</b>	<b>57.2</b>	<b>-3.3%</b>

\*Carbon intensity (or carbon output rate) as calculated by the EIA, is the amount of carbon by weight emitted per unit of energy produced in the State. Thus, carbon intensity attributed to Vermont largely reflects low emission generators such as, hydro and Vermont Yankee. It does not include emissions attributed to imported electricity.

Source: U.S. Energy Information Administration, State Energy Data System and EIA calculations.

**Per Capita Energy-Related Carbon Dioxide Emissions by State (2000 - 2009)**

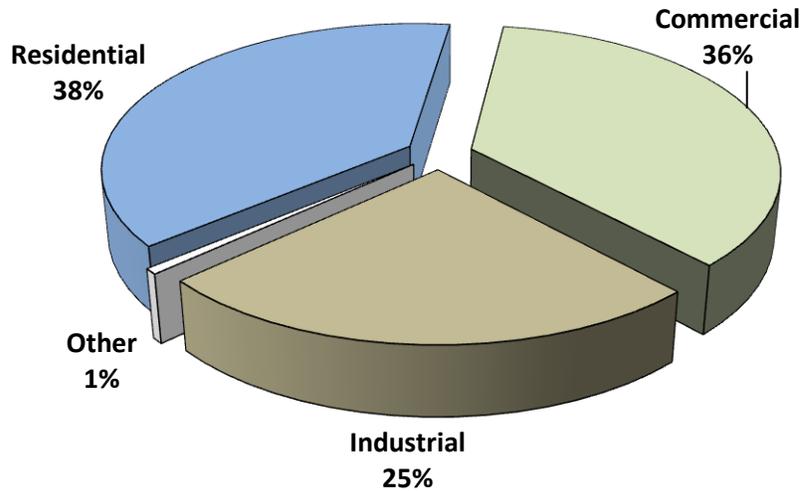
(in metric tons carbon dioxide per person per year)

State	2000	2005	2009	2000 to 2009	
				Change	Percent
Connecticut	12.9	12.7	10.4	-2.5	-19.5%
Maine	17.8	17.4	14.0	-3.8	-21.1%
Massachusetts	13.2	13.2	10.8	-2.4	-18.0%
New Hampshire	14.8	16.4	13.1	-1.7	-11.7%
Rhode Island	10.9	10.2	10.6	-0.4	-3.2%
Vermont	11.0	11.0	10.1	-0.9	-8.4%
<b>U.S. Average</b>	<b>20.7</b>	<b>20.2</b>	<b>17.6</b>	<b>-3.1</b>	<b>-14.8%</b>

Source: U.S. Energy Information Administration, State Energy Data System and EIA calculations

# Electricity

Vermont Retail Sales Electricity to Ultimate Customers, By End Use Sector (in Million kWh)



Vermont Retail Sales Electricity to Ultimate Customers, By End Use Sector (in Million kWh)

Year	Total	= Residential	+ Commercial	+ Industrial	+ Other
2000	5,628.2	2,034.7	1,900.8	1,652.2	40.5
2001	5,583.1	2,009.3	1,920.8	1,611.8	41.2
2002	5,623.9	2,046.1	1,943.8	1,592.4	41.6
2003	5,643.1	2,128.7	1,911.5	1,561.4	41.5
2004	5,748.4	2,141.5	1,926.6	1,639.0	41.4
2005	5,885.7	2,190.5	2,037.2	1,619.7	38.3
2006	5,794.0	2,140.5	2,015.4	1,598.7	39.4
2007	5,852.1	2,169.0	2,080.3	1,567.5	35.3
2008	5,743.9	2,133.4	2,049.2	1,526.5	34.8
2009	5,494.4	2,120.9	1,969.1	1,368.9	35.4
2010	5,594.8	2,127.1	2,002.6	1,432.6	32.5
2011	5,554.5	2,127.4	1,991.9	1,399.9	35.4
Growth Rate(s)					
2000-2011	-0.1%	0.4%	0.4%	-1.5%	-1.2%

Source: Electric Utility Annual Reports, PSD

**Average Annual Retail Sales Electricity Per Customer, By End Use Sector (Thous. kWh)**

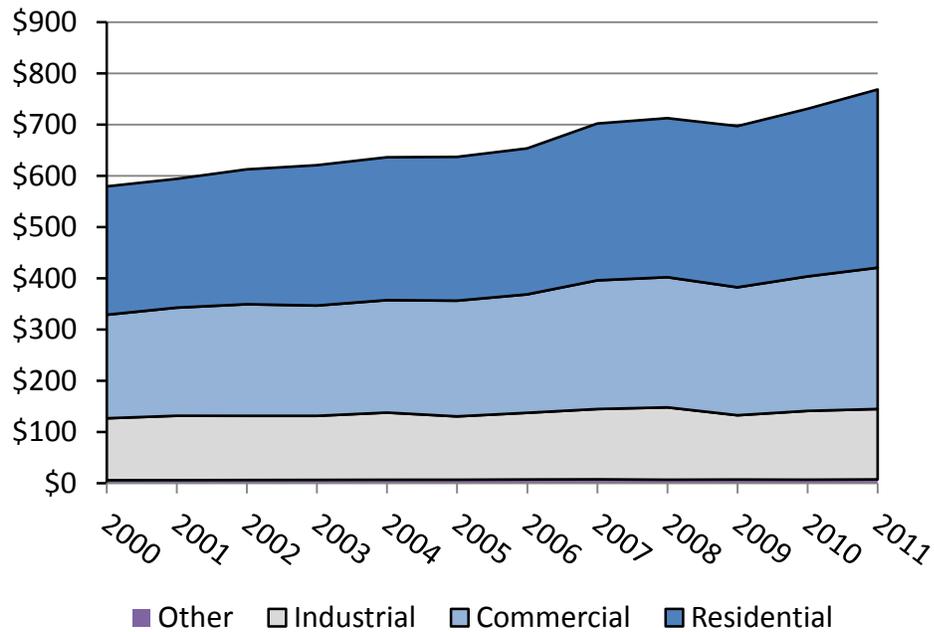
	<b>Residential</b>	<b>Commercial</b>	<b>Industrial</b>
2000	7.2	46.2	4,161.6
2001	7.0	45.4	3,902.5
2002	7.1	45.1	3,499.9
2003	7.3	43.7	3,336.3
2004	7.2	43.1	2,958.4
2005	7.3	44.5	5,158.1
2006	7.1	43.1	4,934.1
2007	7.1	43.7	6,756.4
2008	7.0	42.6	4,682.5
2009	6.9	40.5	5,926.0
2010	6.9	40.7	6,228.7
2011	6.9	40.1	6,113.1
Growth rate(s)	-0.4%	-1.3%	3.6%

Source: PSD

**Electric Utility Rate Revenue (in Millions \$) By End Use Sector, Vermont**

	<b>Total Rate Revenue</b>	<b>Residential Revenue</b>	<b>Commercial Revenue</b>	<b>Industrial Revenue</b>	<b>Other Revenue</b>
2000	\$579.3	\$250.5	\$202.0	\$120.9	\$5.9
2001	\$594.0	\$251.4	\$211.0	\$125.6	\$6.1
2002	\$612.6	\$263.2	\$217.8	\$125.2	\$6.3
2003	\$620.7	\$273.9	\$215.2	\$125.1	\$6.5
2004	\$636.2	\$278.8	\$219.4	\$131.2	\$6.8
2005	\$637.0	\$280.6	\$225.8	\$123.7	\$6.8
2006	\$653.5	\$284.9	\$231.1	\$130.2	\$7.3
2007	\$702.0	\$306.0	\$251.1	\$137.2	\$7.6
2008	\$712.5	\$310.4	\$254.1	\$141.2	\$6.9
2009	\$697.0	\$314.6	\$249.7	\$125.5	\$7.2
2010	\$730.8	\$327.1	\$262.5	\$134.3	\$6.9
2011	\$768.5	\$347.8	\$275.8	\$137.4	\$7.5
Growth rate(s)	2.60%	3.03%	2.87%	1.17%	2.24%

**Electric Utility Rate Revenue (in Millions \$) By End Use Sector, Vermont**



Source: Electric Utility Annual Reports, PSD

### Utility Retail Sales Electricity to Ultimate Customers, By End Use Sector (Million KWh), 2011

	Total***	Residential	Commercial	Industrial	Growth Rate 2000-11
Barton	14	11	3	0	0.1%
BED	345	85	213	42	0.2%
CVPS*	2,252	979	834	432	0.2%
Enosburg	26	13	2	10	2.7%
GMP*	1,895	578	694	617	-0.3%
Hardwick	32	23	4	4	0.4%
Hyde Park	11	8	2	0	0.5%
Jacksonville	5	4	1	1	-0.7%
Johnson	13	5	1	7	-1.7%
Ludlow	46	16	19	10	0.3%
Lyndonville	68	32	10	25	0.2%
Morrisville	45	21	24	0	0.2%
Northfield	29	11	2	14	1.2%
Orleans	13	4	2	7	-2.5%
Readsboro**	1	1	0	0	
Stowe	74	22	41	11	2.0%
Swanton	53	27	25	0	-0.9%
VEC	430	221	106	93	10.7%
VMPD OMYA**	132	4	3	124	
WEC	69	62	4	3	1.2%
Total	5,555	2,127	1,992	1,400	-0.1%

\* Includes MWh related to unbilled revenue \*\*Readsboro Electric sold to CVPS 8/2011, VMPD to CVPS 9/2011

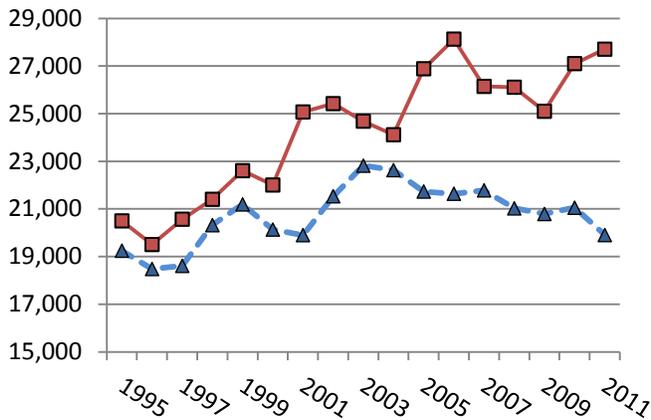
\*\*\* Total Sales includes Public Street & Highway, Public Authorities; excludes re-sales.

### Utility Electric Rate Revenue & Revenue Per kWh, 2011

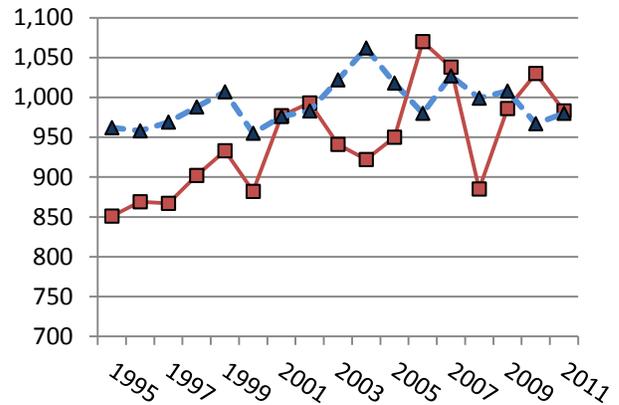
	Rate Revenue (\$)	Revenue Per kWh (Cents)			Total
		Residential	Commercial	Industrial	
Barton	\$2,511,585	17.25	17.70		17.48
BED	\$48,475,295	15.69	13.86	11.32	14.05
CVPS*	\$321,109,947	16.14	14.23	9.80	14.26
Enosburg	\$4,065,539	16.05	16.34	14.78	15.57
GMP*	\$238,909,277	15.92	12.83	9.16	12.61
Hardwick	\$5,640,670	17.62	18.50	17.40	17.76
Hyde Park	\$2,028,715	17.83	19.63		18.27
Jacksonville	\$862,999	16.95	17.16	16.82	16.98
Johnson	\$2,375,506	17.46	20.00	17.22	17.64
Ludlow	\$7,278,762	13.84	15.74	18.98	15.87
Lyndonville	\$10,269,896	14.64	16.76	14.88	15.12
Morrisville	\$6,998,956	15.52	15.51		15.55
Northfield	\$4,010,222	13.89	14.65	12.97	13.60
Orleans	\$1,893,317	12.92	14.04	15.04	14.24
Readsboro**	\$197,075	16.63	20.38	16.51	17.02
Stowe	\$11,225,961	18.28	14.71	10.88	15.25
Swanton	\$6,421,466	11.46	12.69		12.09
VEC	\$69,757,443	18.83	15.78	10.34	16.22
VMPD OMYA**	\$11,434,458	10.35	10.98	8.53	8.66
WEC	\$13,040,344	19.14	17.94	13.11	18.81
Total	\$768,507,433	16.35	13.85	9.81	13.84

\*See Footnotes above.

New England Seasonal Peak (MW)



Vermont Seasonal Peak (MW)

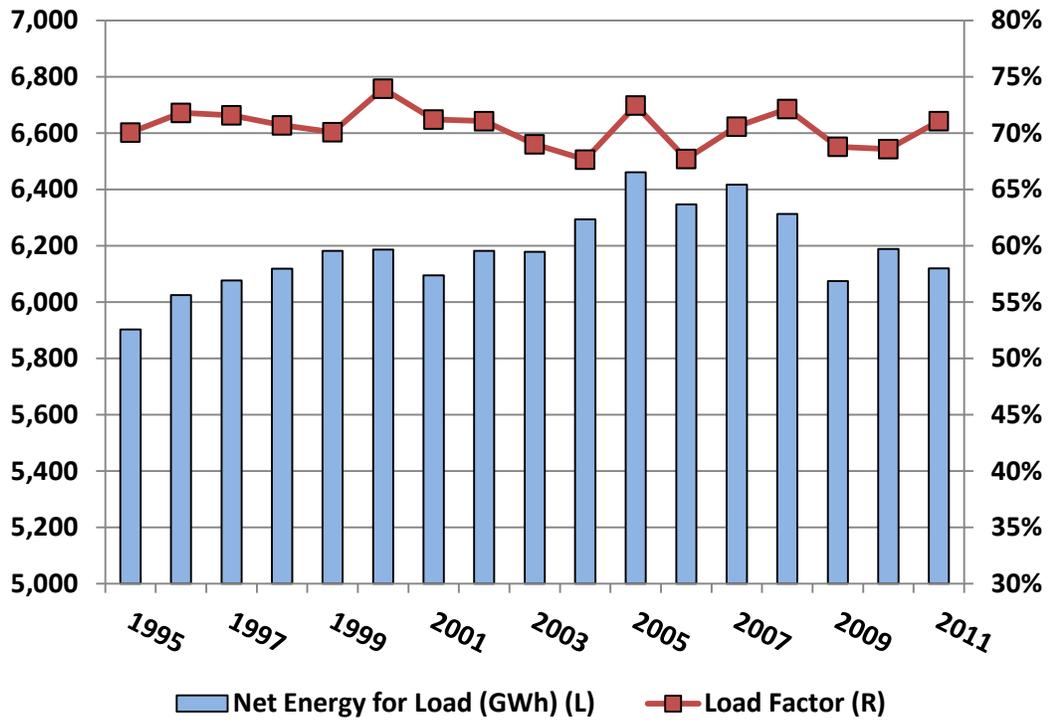


Vermont Seasonal Peak (MW)

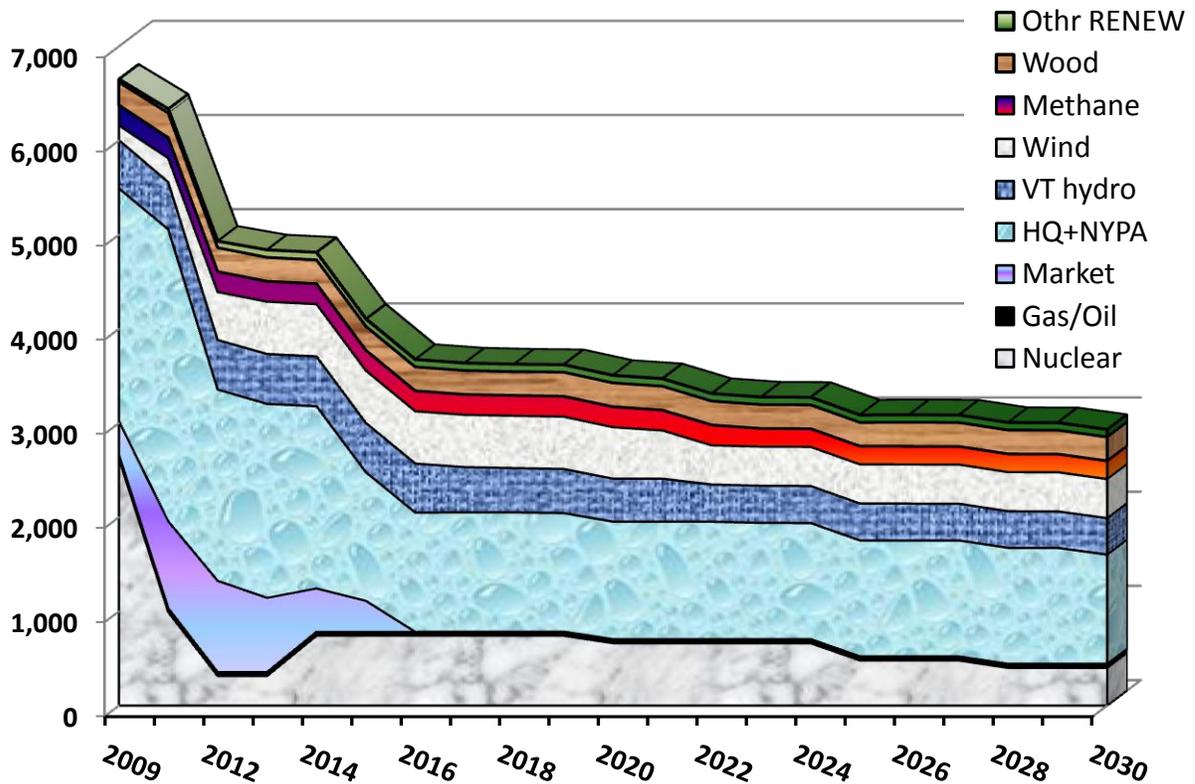
	Net Energy for Load	Summer Peak	Winter Peak	Load Factor*
1995	5,903	851	962	70.0%
1996	6,025	869	958	71.8%
1997	6,076	867	969	71.6%
1998	6,118	902	988	70.7%
1999	6,182	933	1,007	70.1%
2000	6,186	882	955	73.9%
2001	6,094	977	976	71.2%
2002	6,181	993	983	71.1%
2003	6,178	941	1,022	69.0%
2004	6,293	922	1,062	67.6%
2005	6,461	950	1,018	72.5%
2006	6,346	1,070	980	67.7%
2007	6,417	1,038	1,027	70.6%
2008	6,313	885	999	72.1%
2009	6,074	986	1,008	68.8%
2010	6,188	1,030	967	68.6%
2011	6,119	983	980	71.1%

\*The load factor is the average electric load divided by the peak load in a specified time period. Its value is always less than one because peak demand is always more than average demand. A high load factor means power usage is relatively constant, whereas a low load factor shows that a high demand is seen occasionally.

Vermont Electric Utilities: Annual Energy, Load Factor, 1995-2011

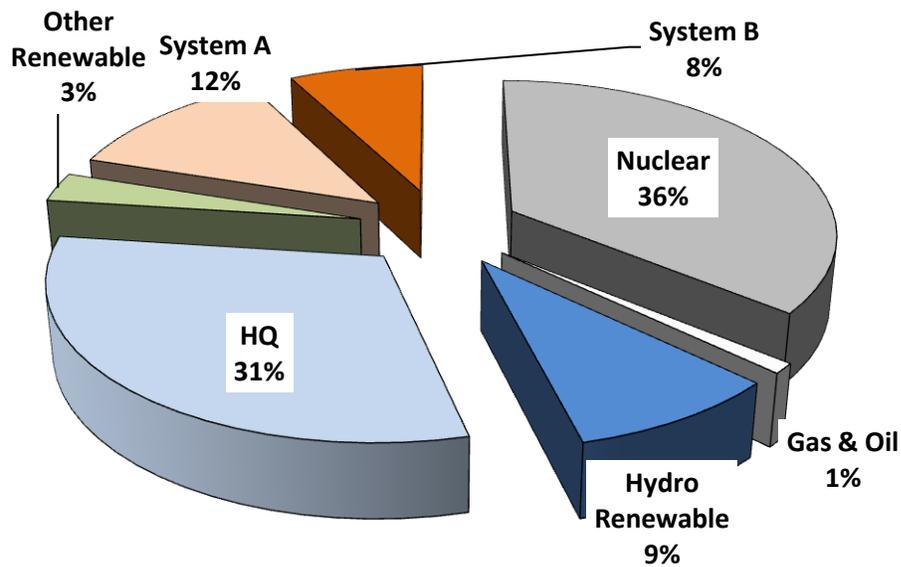


Committed Resources: Vermont Electric Utilities (in MWh)



Source(s): Vermont Electric utilities Integrated Resource Plans (selected), PSD

Vermont Own Load Electric Energy Supply, 2011



Vermont Electric Utilities By Energy Source, 2011 (in MWh)

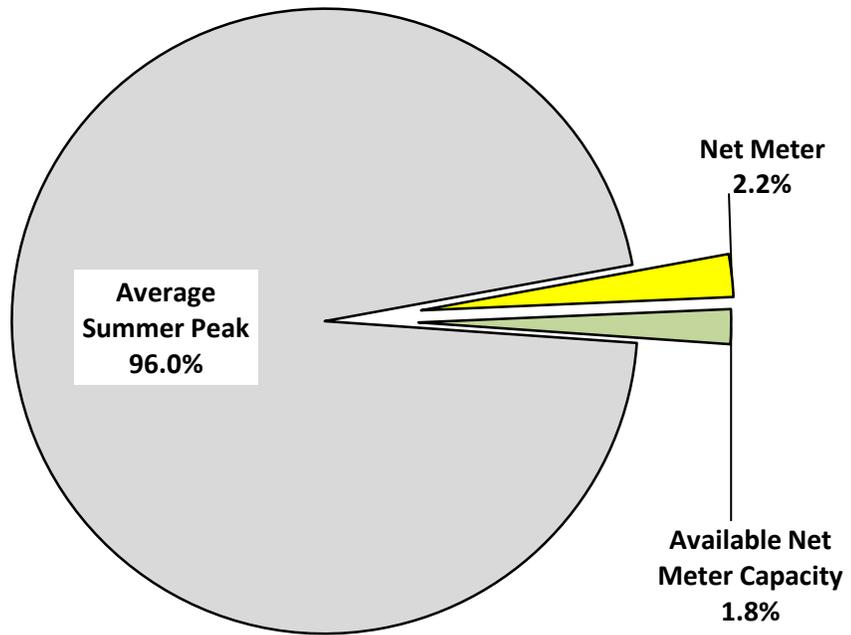
2011	Hydro				Other			
	Nuclear	Gas	Renewable	HQ	Oil	Renewable	System A	System B
CVPS	1,272,397	0	149,084	742,105	37,862	27,118	0	209,296
GMP	809,102	8,823	204,568	755,274	11,101	34,988	154,525	59,830
VEC	74,261	0	45,718	218,186	7	24,803	105,049	0
BED	0	223	26,357	0	0	11,059	194,080	124,138
VtMarble*	0	0	35,084	26,697	-131	4,453	86,648	0
WEC	0	0	13,852	14,886	0	54,253	0	0
Lyndonville	0	456	7,315	20,270	249	2,234	41,704	8,339
Stowe	0	1,653	-1,484	22,138	826	8,965	38,123	6,816
Swanton	0	340	39,324	0	168	1,558	-8,336	23,222
Morrisville	11,337	351	8,119	17,913	173	424	6,485	10,539
Ludlow	0	526	4,262	10,682	259	1,545	25,536	4,544
Hardwick	0	526	9,133	0	259	1,083	28,304	5,216
Northfield	0	0	-2,096	9,983	0	5,440	17,748	4,503
Enosburg	0	0	3,307	11,065	1	778	10,487	3,519
Orleans	0	0	892	4,767	0	367	11,163	0
Barton	0	0	1,625	8,560	2	430	0	5,202
Johnson	0	0	1,111	0	0	469	14,158	0
Hyde Park	0	0	1,385	2,582	0	376	8,137	0
Jacksonville	0	0	777	0	0	164	5,564	0
Readsboro	0	0	165	0	0	43	1,211	0
<b>Total</b>	<b>2,167,097</b>	<b>12,898</b>	<b>548,498</b>	<b>1,865,108</b>	<b>50,776</b>	<b>180,550</b>	<b>740,585</b>	<b>465,164</b>

\*Estimated 9 mo. output prior to acquisition by CVPS

Note: System A are market purchases of energy by Vermont utilities not attributed to any specific source. System B is energy produced by renewable facilities where the Renewable Energy Credits have been sold to third parties who now own and claim those environmental attributes.

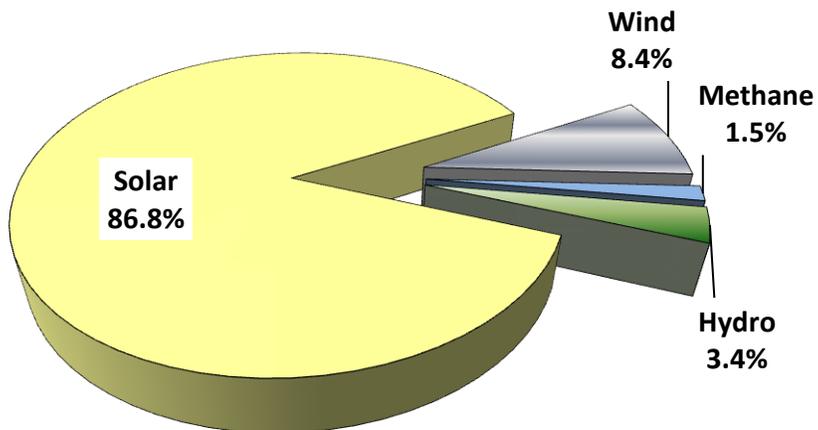
Source: PSD

**Percent Installed & Net Metered Available Capacity (as of December 31, 2012) \***

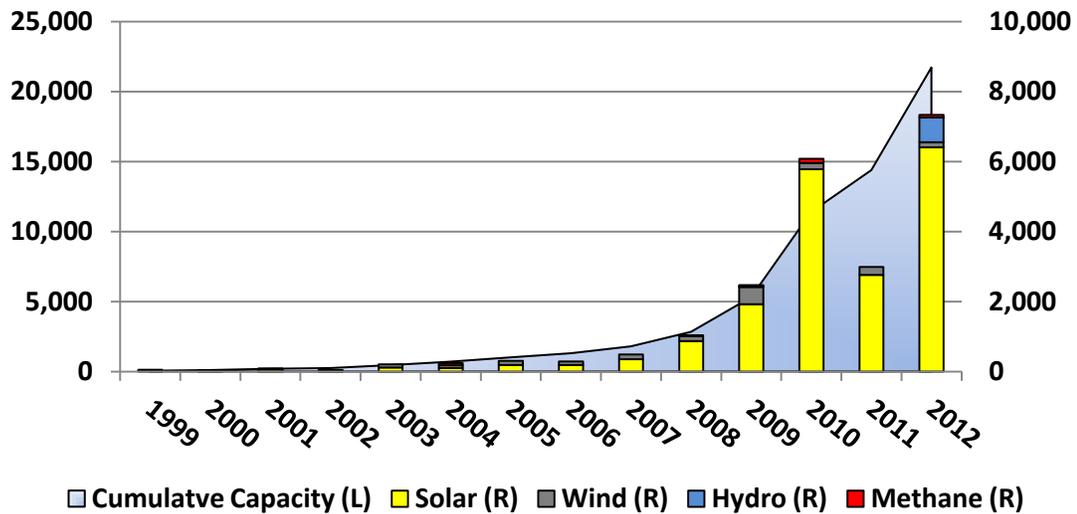


\* Net Metered faceplate capacity is currently allowed up to 4 % of peak (statewide) capacity; the estimates in the above chart are based on a 5 year average summer peak (2007 – 2011).

**Distribution of Cumulative Net Metered CPG Faceplate Capacity By Technology (as of December 31, 2012)**



Net Meter Capacity (in kW) By Year and Cumulative, 1999-2012

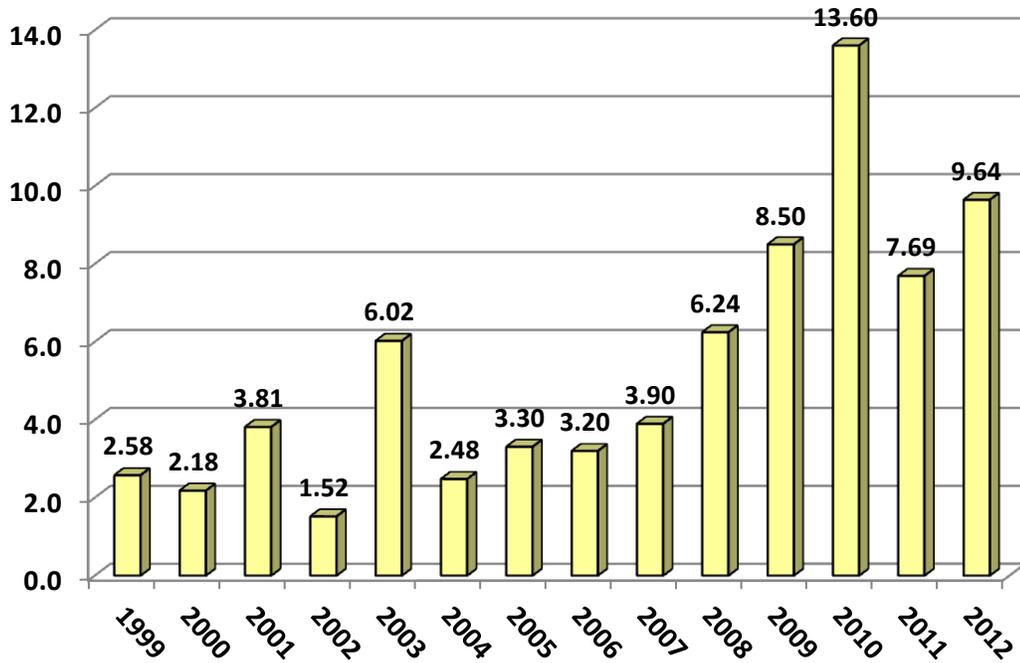


Net Metering CPG, By Type, By Utility, 1999-2012

	Solar		Wind		Methane		Hydro	
	No.	Capacity (kW)	No.	Capacity (kW)	No.	Capacity (kW)	No.	Capacity (kW)
BED	63	1,493.3	3	39.1	0	0.0	0	0.0
CVPS	770	6,098.6	61	338.0	3	100.0	4	446.2
GMP	999	11,580.7	35	939.1	2	84.0	2	288.2
VEC	256	1,839.9	44	325.8	2	115.1	0	0.0
WEC	138	703.0	7	60.4	0	0.0	0	0.0
Barton	2	17.4	0	0.0	0	0.0	0	0.0
Enosburg	2	11.0	0	0.0	0	0.0	0	0.0
Hardwick	31	135.9	8	76.5	0	0.0	0	0.0
Lyndonville	6	22.4	0	0.0	0	0.0	0	0.0
Jacksonville	0	0.0	2	6.2	0	0.0	0	0.0
Northfield	4	63.0	0	0.0	0	0.0	0	0.0
Johnson	0	0.0	0	0.0	0	0.0	0	0.0
Ludlow	0	0.0	0	0.0	0	0.0	0	0.0
Lyndonville	21	172.5	1	95.0	0	0.0	0	0.0
Morrisville	15	215.3	3	28.5	0	0.0	0	0.0
Orleans	0	0.0	0	0.0	0	0.0	0	0.0
Readsboro	0	0.0	0	0.0	0	0.0	0	0.0
Stowe	19	152.1	0	0.0	1	20.0	0	0.0
Swanton	0	0.0	0	0.0	0	0.0	0	0.0

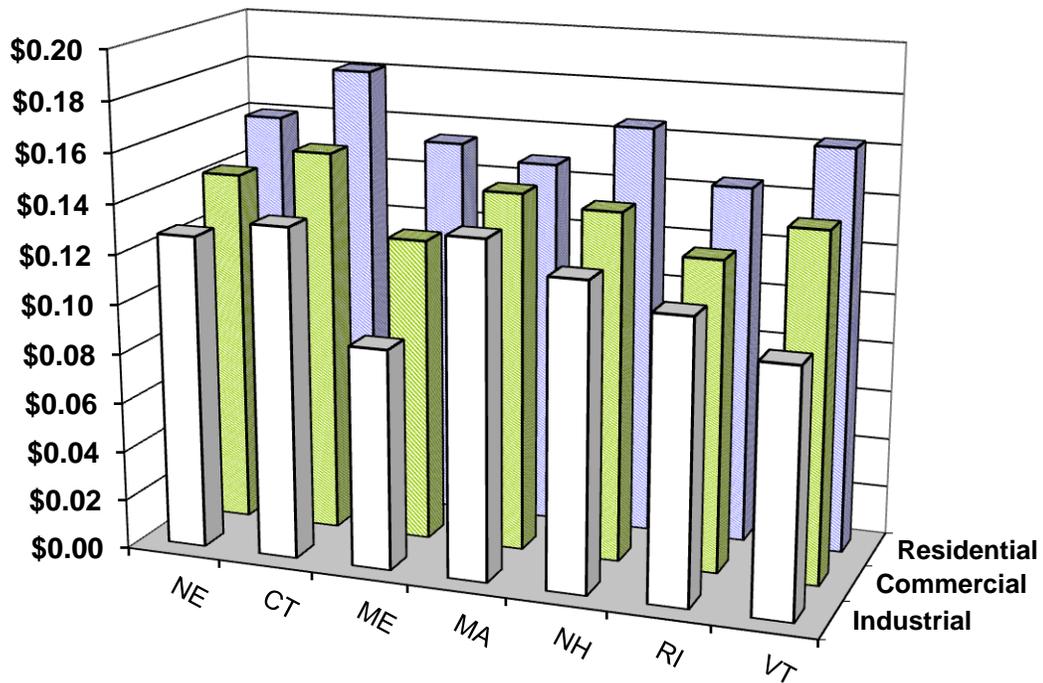
Source: PSD

Average Size (in kW) Net Metered Solar Installations, 1999-2011



Source: PSD

Average Retail Price of Electricity By End-Use Sector, 2011 (\$ per KWh)



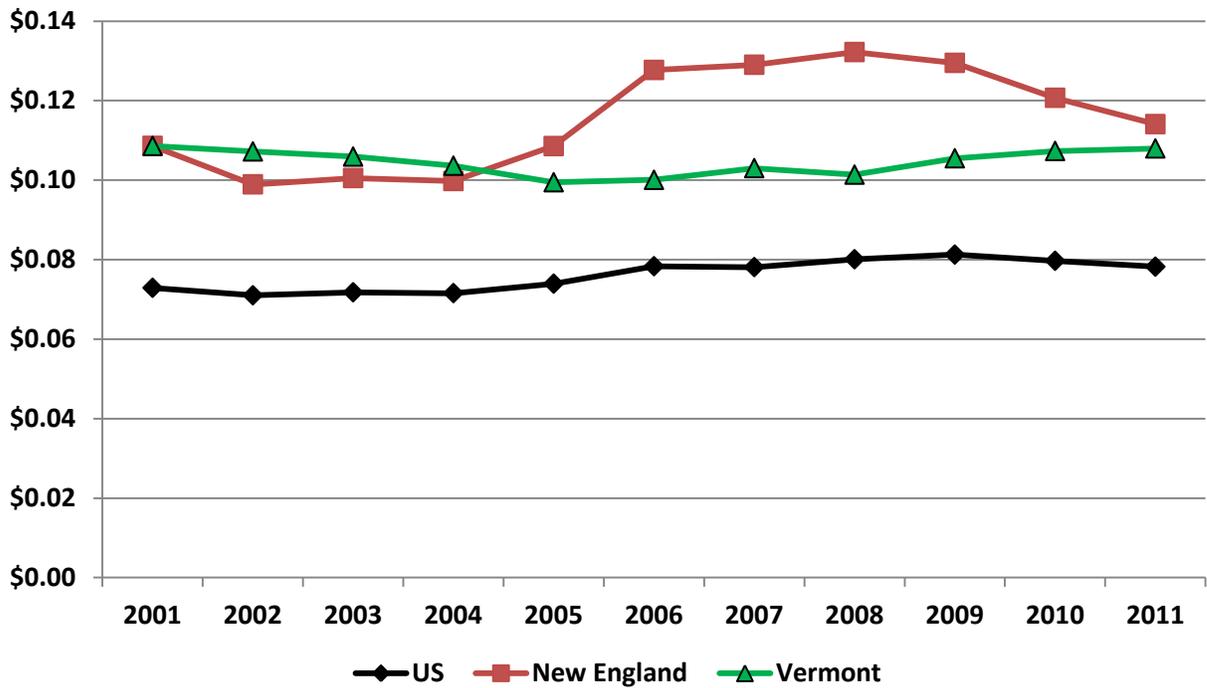
Source: EIA

**Average Retail Price of Electricity to Ultimate Customers By End-Use Sector, By State**  
(in Cents per kWh)

	<b>2001</b>	<b>2003</b>	<b>2005</b>	<b>2007</b>	<b>2009</b>	<b>2011</b>	<b>Growth Rate 2001-11</b>
<b>All Sectors</b>							
Connecticut	9.62	10.16	12.06	16.45	18.06	16.33	5.4%
Maine	10.55	9.79	10.57	14.59	13.09	12.58	1.8%
Massachusetts	11.55	10.56	12.18	15.16	15.45	14.26	2.1%
New Hampshire	10.95	10.83	12.53	13.98	15.13	14.75	3.0%
Rhode Island	11.45	10.47	11.97	13.12	14.23	13.15	1.4%
Vermont	10.86	10.98	10.95	12.04	12.75	13.79	2.4%
<b>Residential</b>							
Maine	13.13	12.37	13.23	16.52	15.65	15.41	1.6%
Massachusetts	12.47	11.6	13.44	16.23	16.87	14.82	1.7%
New Hampshire	12.49	11.98	13.51	14.88	16.26	16.54	2.8%
Rhode Island	12.13	11.61	13.04	14.05	15.6	14.45	1.8%
Vermont	12.67	12.82	12.96	14.15	14.9	16.28	2.5%
<b>Commercial</b>							
Connecticut	9.26	9.93	11.53	15.39	16.86	15.48	5.3%
Maine	11.64	10.34	10.63	12.94	12.55	12.27	0.5%
Massachusetts	11.64	10.48	12.42	15.2	15.37	14.45	2.2%
New Hampshire	10.53	10.3	12.06	13.91	14.55	14.02	2.9%
Rhode Island	11.54	10.09	11.71	12.67	13.67	12.49	0.8%
Vermont	11.28	11.29	11.33	12.29	12.93	13.95	2.1%
<b>Industrial</b>							
Connecticut	7.62	7.99	9.4	12.92	14.92	13.37	5.8%
Maine	7.15	6.35	7.28	14.11	9.95	8.9	2.2%
Massachusetts	9.37	8.93	9.22	13.03	14.08	13.55	3.8%
New Hampshire	9.11	9.75	11.48	12.27	13.83	12.32	3.1%
Rhode Island	9.36	8.88	10.01	12.04	12.25	11.31	1.9%
Vermont	7.89	8.05	7.77	8.92	9.21	9.86	2.3%

Source: EIA

Average Electricity Rates, Real Price (in 2001 \$) Per kWh



Source: EIA, PSD

Average Monthly Electric Bill, 2011

	Residential			Commercial			Industrial		
	Avg Use kWh	Cents per kWh	Average Elec Bill	Avg Use kWh	Cents per kWh	Average Elec Bill	Avg Use kWh	Cents per kWh	Average Elec Bill
Connecticut	740	18.11	\$134	7,266	15.57	\$1,132	64,260	13.24	\$8,508
Maine	521	15.38	\$80	3,771	12.29	\$464	89,023	8.88	\$7,908
Massachusetts	633	14.67	\$93	3,798	14.33	\$544	67,288	13.38	\$9,000
N Hampshire	619	16.52	\$102	3,567	14.04	\$501	46,224	12.27	\$5,670
Rhode Island	603	14.33	\$86	5,313	12.37	\$657	38,979	11.27	\$4,395
Vermont	573	16.26	\$93	3,295	14.00	\$461	534,353	9.83	\$52,503
New England	639	15.89	\$102	4,458	14.31	\$638	67,907	12.55	\$8,520

Source: EIA

**Vermont Supply and Disposition of Electricity (Million kWh), 1990, 2000, 2010**

	Supply			Disposition (Demand)				
	Total	= Generation	+ Int'l Imports	=	Electric Retail Sales	+ Int'l Exports	+ Net Interstate Trade	+ Losses
<b>1990</b>	6,973	5,164	1,809	=	4,716	99	1,771	353
<b>2000</b>	10,583	6,303	4,280	=	5,639	362	4,135	401
<b>2010</b>	9,078	6,620	2,458	=	5,595	32	2,986	445
<b>1990</b>	100.0%	74.1%	25.9%	=	67.6%	1.4%	25.4%	5.1%
<b>2000</b>	100.0%	59.6%	40.4%	=	53.3%	3.4%	39.1%	3.8%

Sources: U.S. Energy Information Administration, Form EIA-923, "Power Plant Operations Report."

**Vermont Electric Power Generation Industry Emissions Estimates, 1990 Thru 2010 (Thou. Metric Tons)**

Emission Type	1990	1995	2000	2005	2010
<b>Sulfur Dioxide</b>					
Petroleum	*	*	*	*	*
Other Renewables <sup>1</sup>	-	*	*	*	*
Total	*	*	*	*	*
<b>Nitrogen Oxide</b>					
Petroleum	*	*	*	*	*
Natural Gas	*	*	-	*	*
Other Gases	-	-	*	-	-
Other Renewables <sup>1</sup>	-	*	1	*	1
Total	*	1	1	*	1
<b>Carbon Dioxide</b>					
Petroleum	3	17	67	12	5
Natural Gas	38	7	55	2	3
Other Gases	-	-	20	-	-
Total	41	24	141	14	8

1 Other Renewables includes biogenic municipal solid waste, other wood waste, other biomass.

\*Indicates values under 0.5,  
 - (dash) means data not available.

Sources: Calculations made by the Electric Power Systems and Reliability Team; Office of Electricity, Renewables, and Uranium Statistics; EIA

Vermont Electric Utility Reliability, SAIFI, CAIDI\*, 2010-2012

Utility		2010		2011		2012	
		SAIFI	CAIDI	SAIFI	CAIDI	SAIFI	CAIDI
Barton	Reliability Baseline**	1.8	2.5	1.8	2.5	1.8	2.5
	"all in" Outage**	3.0	1.6			4.4	6.9
	Outage w/ exclusions**						
BED	Reliability Baseline	2.1	1.2	2.1	1.2	2.1	1.2
	"all in" Outage	0.7	1.0			1.4	1.0
	Outage w/ exclusions						
Enosburg	Reliability Baseline	2.5	1.0	2.5	1.0	2.5	1.0
	"all in" Outage	3.8	13.5			1.1	2.2
	Outage w/ exclusions	0.5	1.8				
Hardwick	Reliability Baseline	3.5	2.4	3.5	2.4	3.5	2.4
	"all in" Outage					4.3	3.0
	Outage w/ exclusions						
Hyde Park	Reliability Baseline	2.6	1.9	2.6	1.9	2.6	1.9
	"all in" Outage					0.3	2.2
	Outage w/ exclusions						
Jacksonville	Reliability Baseline	2.4	3.0	2.4	3.0	2.4	3.0
	"all in" Outage	3.1	4.5			1.7	3.3
	Outage w/ exclusions	2.1	3.6				
Johnson	Reliability Baseline	1.0	2.7	1.0	2.7	1.0	2.7
	"all in" Outage	3.7	1.0			0.9	2.7
	Outage w/ exclusions	0.2	1.6				
Ludlow	Reliability Baseline	3.0	0.9	3.0	0.9	3.0	0.9
	"all in" Outage					1.4	0.4
	Outage w/ exclusions						
Morrisville	Reliability Baseline	3.0	2.5	3.0	2.5	3.0	2.5
	"all in" Outage	1.0	2.3			0.8	1.3
	Outage w/ exclusions						

\*SAIFI (System Average Interruption Frequency Index) is a measure of the number of times the average utility customer experiences an outage. It is defined as: No. Customers Out/No. Customers served.

CAIDI (Customer Average Interruption Duration Index) is a measure of the average length of times (in hours) required to restore service. It is defined as Customer Hours Out/Customers Out.

\*\*Reliability baseline, set by the Public Service Board, is a utility specific reliability standard. "All-in" Outage is a measure of utility reliability regardless of circumstances. Outage w/exclusions provide a measure of utility reliability apart from unique weather events and/or unavoidable equipment/substation failures.

Note: a 'red' value indicates a utility failure to meet a reliability standard.

Table continued on next page>

Vermont Electric Utility Reliability, SAIFI, CAIDI\*, 2010-2012 (continued)

Utility (continued)		2010		2011		2012	
Northfield	Reliability Baseline	1.0	2.4	1.0	2.4	1.0	2.4
	"all in" Outage					1.0	2.3
	Outage w/ exclusions						
Orleans	Reliability Baseline	1.0	1.5	1.0	1.5	1.0	1.5
	"all in" Outage					0.0	1.4
	Outage w/ exclusions						
Stowe	Reliability Baseline	0.9	3.3	0.9	3.3	0.9	3.3
	"all in" Outage					1.6	1.7
	Outage w/ exclusions						
Swanton	Reliability Baseline	2.4	2.5	2.4	2.5	2.4	2.5
	"all in" Outage					1.9	2.4
	Outage w/ exclusions						
VEC	Reliability Baseline	2.5	2.6	2.5	2.6	2.5	2.6
	"all in" Outage	3.7	7.1	2.4	3.8	2.1	2.9
	Outage w/ exclusions	1.8	2.5	1.8	2.4	2.0	2.6
WEC	Reliability Baseline	3.8	2.7	3.8	2.7	3.8	2.7
	"all in" Outage					4.1	2.8
	Outage w/ exclusions					3.7	2.3
CVPS GMP - South	Reliability Baseline	3.5	2.5	3.5	2.5	3.5	2.5
	"all in" Outage	3.4	5.5	3.3	6.1	2.6	3.2
	Outage w/ exclusions	2.2	2.7	2.5	2.9	2.1	2.1
GMP - North	Reliability Baseline	2.2	2.1	2.2	2.1	2.2	2.1
	"all in" Outage	2.3	2.2			2.1	1.6
	Outage w/ exclusions						

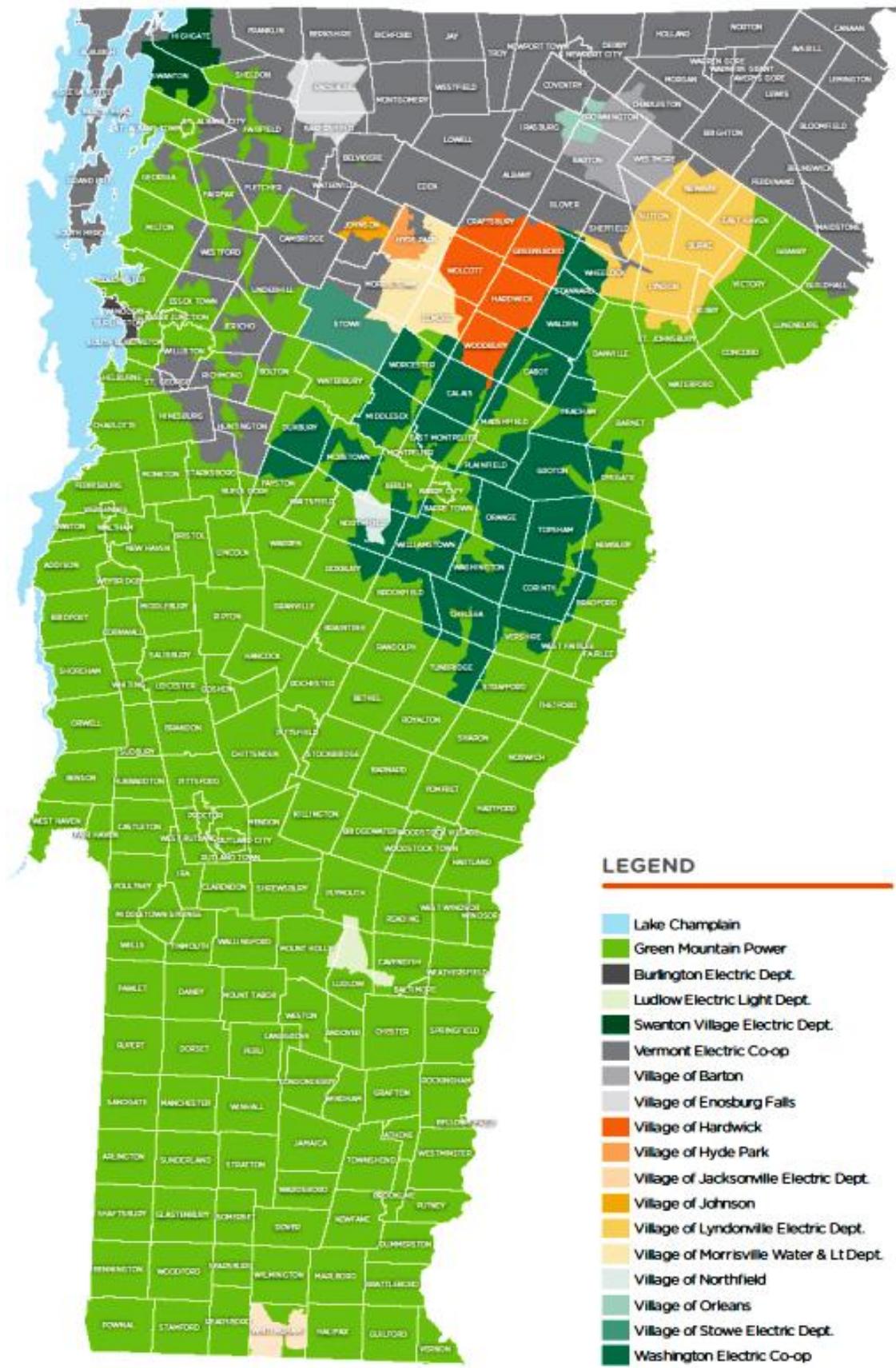
Source: PSD

## Number of Electric Utility Customer Complaints by Utility, Selected Years

	<u>2001</u>	<u>2003</u>	<u>2005</u>	<u>2007</u>	<u>2009</u>	<u>2011</u>
Barton		2			1	
BED	6	4	6	4	3	9
CVPS	74	94	15	11	26	27
Enosburg	4	2	2			
Falls						
GMP	96	44	15	4	10	
Hardwick	1	2			3	1
Hyde Park	3				2	1
Jacksonville		4				3
Johnson						
Ludlow		1				
Lyndonville	5	3		1	2	
Northfield				1		
Morrisville	3	1			1	
Rochester						
Stowe	1					
Swanton		3	1	1		1
VEC	9	11	24	14	9	15
Vermont						
Marble						
WEC	9	6		1	2	5

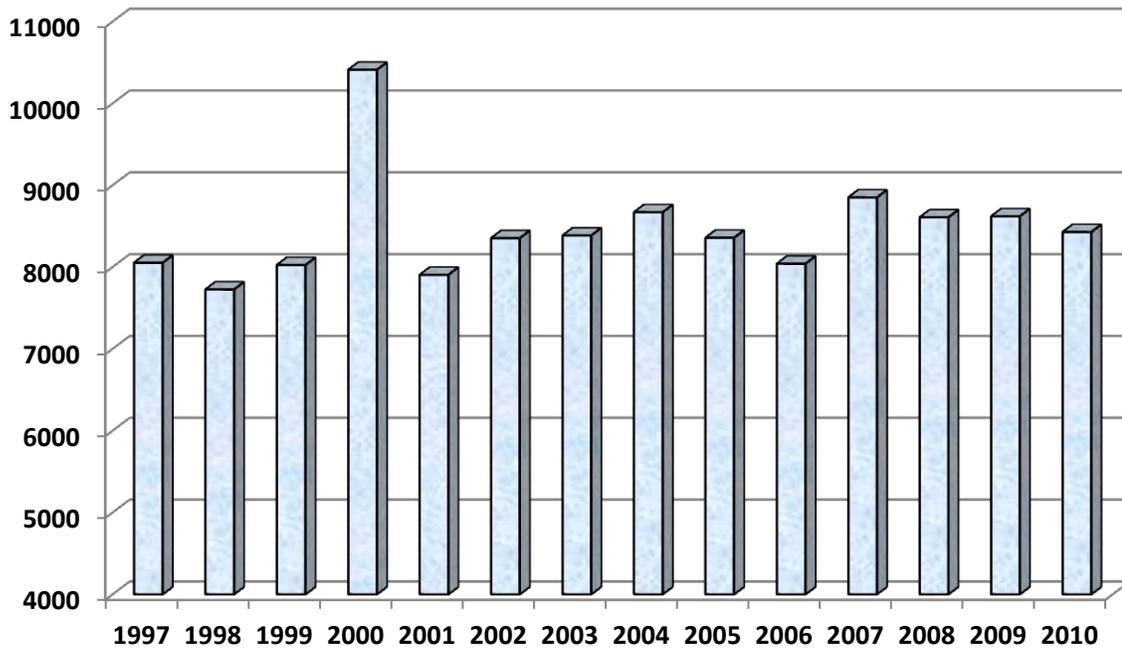
Source: Division of Consumer Affairs and Public Information, PSD

Vermont Electric Utilities Service Territory Map, 2012



# Natural Gas

Natural Gas Delivered to Vermont Consumers (Millions of cubic feet (MMCF))



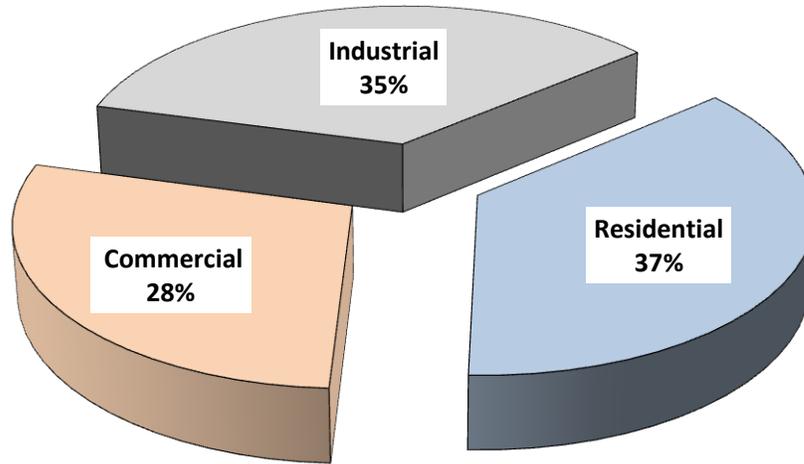
Source: EIA

Vermont Natural Gas Consumption By End Use (Millions cubic feet (MMCF))

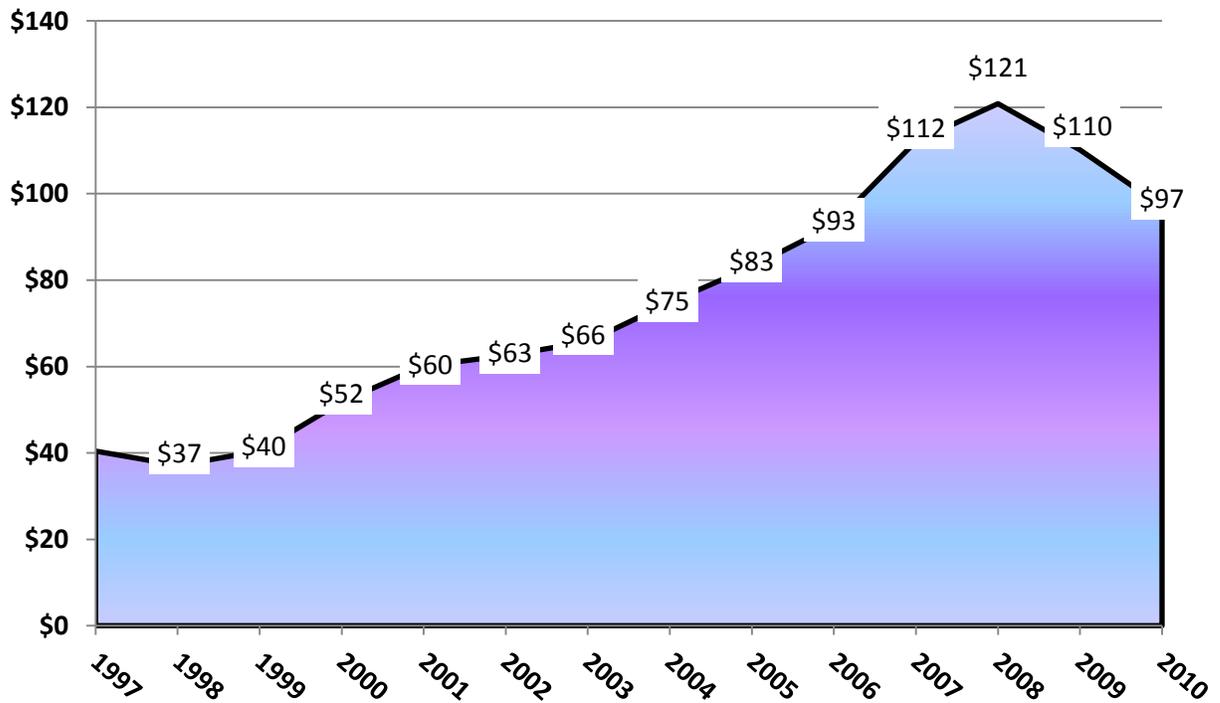
Date	Total Consumption	Pipeline & Distribution	NG Delivered to VT	Residential	Commercial	Industrial	Nat Gas Vehicles	Deliveries to Elec Power Consumers
1997	8061	9	8052	2631	3051	2334	0	36
1998	7735	8	7726	2454	2979	2105	0	188
1999	8033	8	8025	2565	2309	2901	0	250
2000	10,426	15	10,411	2,843	2,595	3,949	0	1,023
2001	7,919	14	7,905	2,719	2,473	2,597	1	116
2002	8,367	14	8,353	2,761	2,470	3,085	1	37
2003	8,400	14	8,386	3,118	2,757	2,479	1	30
2004	8,685	14	8,670	3,112	2,724	2,784	1	51
2005	8,372	14	8,358	3,088	2,610	2,628	0	32
2006	8,056	15	8,041	2,874	2,374	2,762		31
2007	8,867	16	8,851	3,207	2,631	2,987		26
2008	8,624	15	8,608	3,075	2,495	3,000		38
2009	8,638	17	8,620	3,183	2,483	2,890	1	64
2010	8,443	16	8,428	3,078	2,384	2,909	1	55

Source: EIA

Vermont Natural Gas Consumption By End Use Sector, Percent Distribution, 2010



Total End Use Natural Gas Expenditures (Millions \$), Vermont



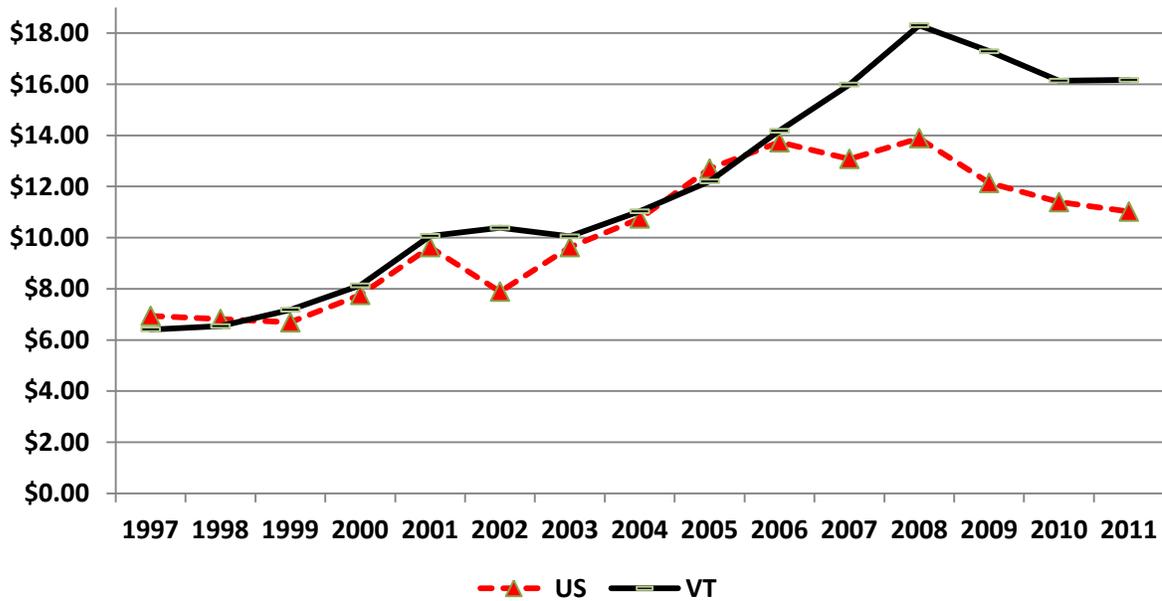
Source: EIA

Average Annual Price of Natural Gas Deliveries (\$ per Thous. Cubic Feet), Vermont

	Residential	Commercial	Industrial
1997	\$6.41	\$5.18	\$3.07
1998	\$6.54	\$5.08	\$2.80
1999	\$7.18	\$5.69	\$3.06
2000	\$8.13	\$6.49	\$2.99
2001	\$10.07	\$7.95	\$5.02
2002	\$10.39	\$8.20	\$4.39
2003	\$10.05	\$8.00	\$4.97
2004	\$11.03	\$8.70	\$6.04
2005	\$12.20	\$9.69	\$7.65
2006	\$14.18	\$11.13	\$9.25
2007	\$15.99	\$12.79	\$9.08
2008	\$18.31	\$14.31	\$9.60
2009	\$17.29	\$12.96	\$7.93
2010	\$16.14	\$11.82	\$6.57
2011	\$16.17	\$11.90	N/A

Source: EIA

Average Natural Gas Residential Retail Prices (\$ per Thous. Cubic Feet)



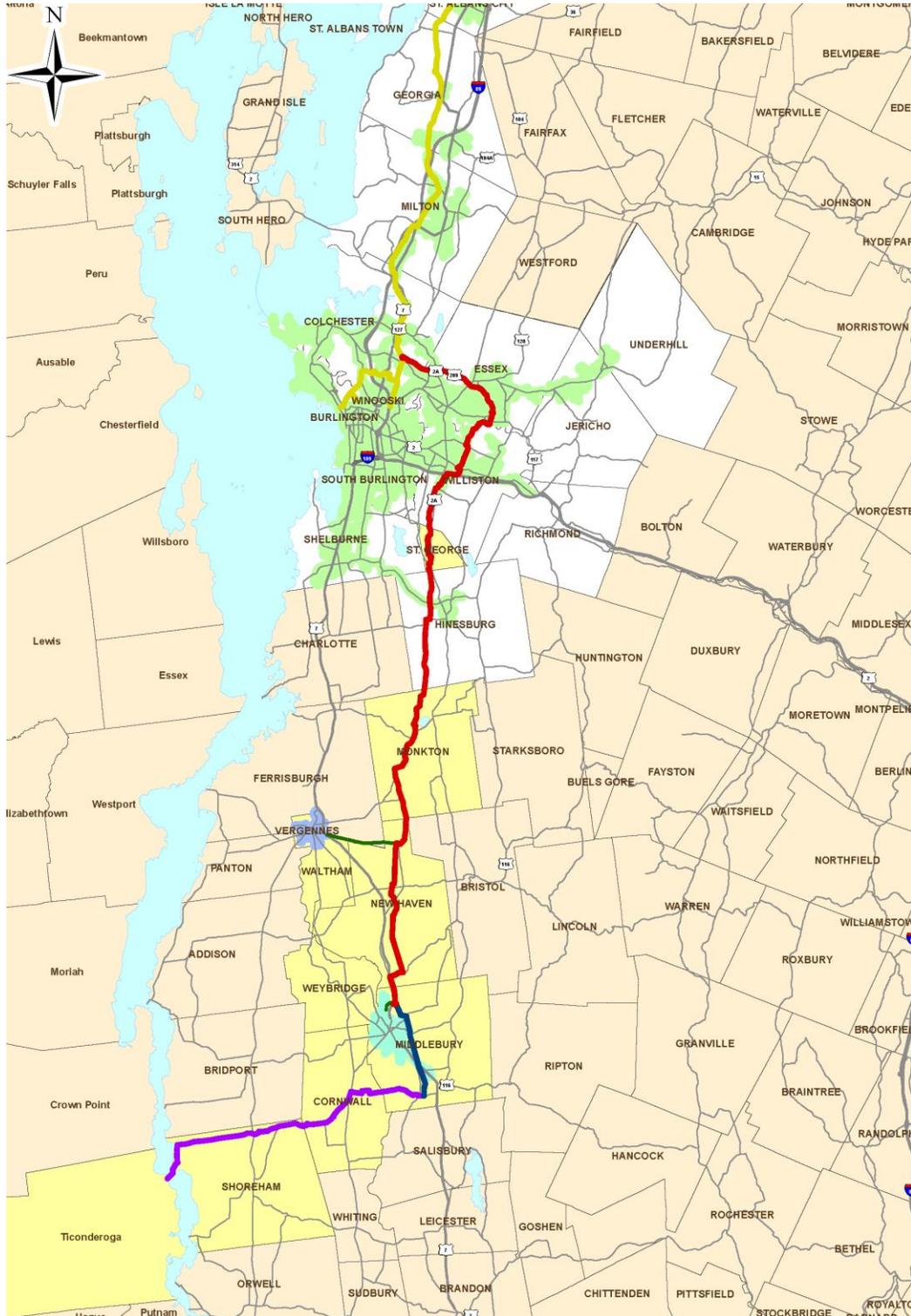
Source: EIA

**Number of Natural Gas Consumer Complaints, Selected Years**

	<u>2001</u>	<u>2003</u>	<u>2005</u>	<u>2007</u>	<u>2009</u>	<u>2011</u>
Vermont Gas	23	19	9	4	13	14

Source: Division of Consumer Affairs and Public Information, PSD

Vermont Gas Systems Service Territory & (proposed) Expansion Projects, 2012



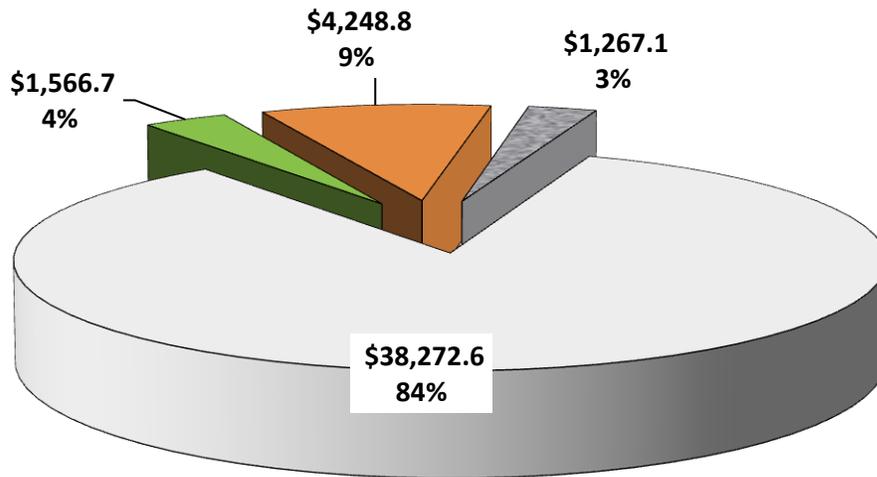
# VGS Expansion Projects

**LEGEND**

- Proposed Addison Transmission
- Proposed Distribution Mainline
- Proposed Addison Extension
- Proposed IP Lateral
- Existing Transmission Main
- Existing Distribution
- Proposed Middlebury Distribution
- Proposed Vergennes Distribution

# Efficiency

Source of Funding (\$ Thou.), Vermont Electric & Thermal Efficiency Programs, 2011



- Ratepayer Funded
- Regional Greenhouse Gas Initiative (RGGI) proceeds
- ISO-NE Forward Capacity Market revenues
- Other

Source: PSD, EVT

Ratepayer Funded Electric Efficiency Charge, \$ Per kWh

	<u>2005</u>	<u>2007</u>	<u>2009</u>	<u>2011</u>	<u>2013</u>	Annual Growth Rate
<b>Burlington Electric (BED)</b>						
Residence	\$ 0.00267	\$ 0.00316	\$ 0.00448	\$ 0.00707	\$ 0.00767	14.1%
Commercial*	\$ 0.00272	\$ 0.00326	\$ 0.00389	\$ 0.00608	\$ 0.00681	12.1%
Industrial*	\$ 0.00218	\$ 0.00267	\$ 0.00325	\$ 0.00455	\$ 0.00554	12.4%
<b>All Other Vermont Utilities**</b>						
Residence	\$ 0.00398	\$ 0.00496	\$ 0.00670	\$ 0.00918	\$ 0.01011	12.4%
Commercial*	\$ 0.00327	\$ 0.00408	\$ 0.00576	\$ 0.00808	\$ 0.00867	13.0%
Industrial*	\$ 0.00268	\$ 0.00293	\$ 0.00408	\$ 0.00665	\$ 0.00612	10.9%

\* Rates for non demand customers, only

\*\*Includes remainder of Vermont EE programs which are managed by Efficiency Vermont, hereafter **EVT** .

## Vermont Efficiency Expenditures\* By Utility (Thous. \$)

	Electric		Thermal Efficiency		=	Total
	EVT	+	BED	EVT		
2002	\$10,982.4		\$1,070.8		\$954.0	\$13,007.2
2003	\$12,957.9		\$926.8		\$1,137.0	\$15,021.7
2004	\$13,992.8		\$846.0		\$1,122.0	\$15,960.8
2005	\$14,551.3		\$860.1		\$1,234.0	\$16,645.4
2006	\$14,234.9		\$998.5		\$1,283.0	\$16,516.4
2007	\$18,360.1		\$1,124.7		\$1,513.0	\$20,997.8
2008	\$29,918.5		\$1,503.3		\$1,881.0	\$33,302.8
2009	\$24,817.1		\$1,209.1		\$1,983.0	\$28,009.2
2010	\$31,974.2		\$1,874.6	\$1,879.8	\$2,018.0	\$37,746.6
2011	\$32,231.1		\$2,134.0	\$5,427.8	\$1,860.0	\$41,652.8

\*Expenditures for resource acquisition and services only. Expenditures accruing as 'overhead' (admin, planning, IT, others) are excluded.

Note: EVT = Efficiency Vermont, BED = Burlington Electric Department, VGS = Vermont Gas Systems

## Vermont Electric Efficiency Expenditures\* (Thous. \$) By End Use Sector

	Business Energy Services**		Residential Energy Services		Share (in %)			
	EV	+	BED	EV	+	BED	Business	Residential
2002	\$6,139.2		\$636.4	\$4,843.2	\$434.4		56.2%	43.8%
2003	\$7,708.1		\$556.1	\$5,249.8	\$370.6		59.5%	40.5%
2004	\$8,289.7		\$452.3	\$5,703.1	\$393.7		58.9%	41.1%
2005	\$8,710.9		\$544.5	\$5,840.4	\$315.6		60.1%	39.9%
2006	\$7,257.6		\$639.2	\$6,977.3	\$359.3		51.8%	48.2%
2007	\$10,174.8		\$683.3	\$8,185.3	\$441.4		55.7%	44.3%
2008	\$21,011.6		\$712.1	\$8,906.9	\$791.2		69.1%	30.9%
2009	\$16,650.5		\$748.6	\$8,166.6	\$460.4		66.9%	33.1%
2010	\$21,602.6		\$1,303.3	\$10,371.6	\$571.3		67.7%	32.3%
2011	\$21,216.7		\$1,459.1	\$11,014.4	\$674.9		66.0%	34.0%

\*Expenditures for resource acquisition and services only. Line items accruing as 'overhead' (admin, planning, IT, others) are excluded.

\*\*Business energy services includes Consumer Credit Program

Source: PSD, EVT

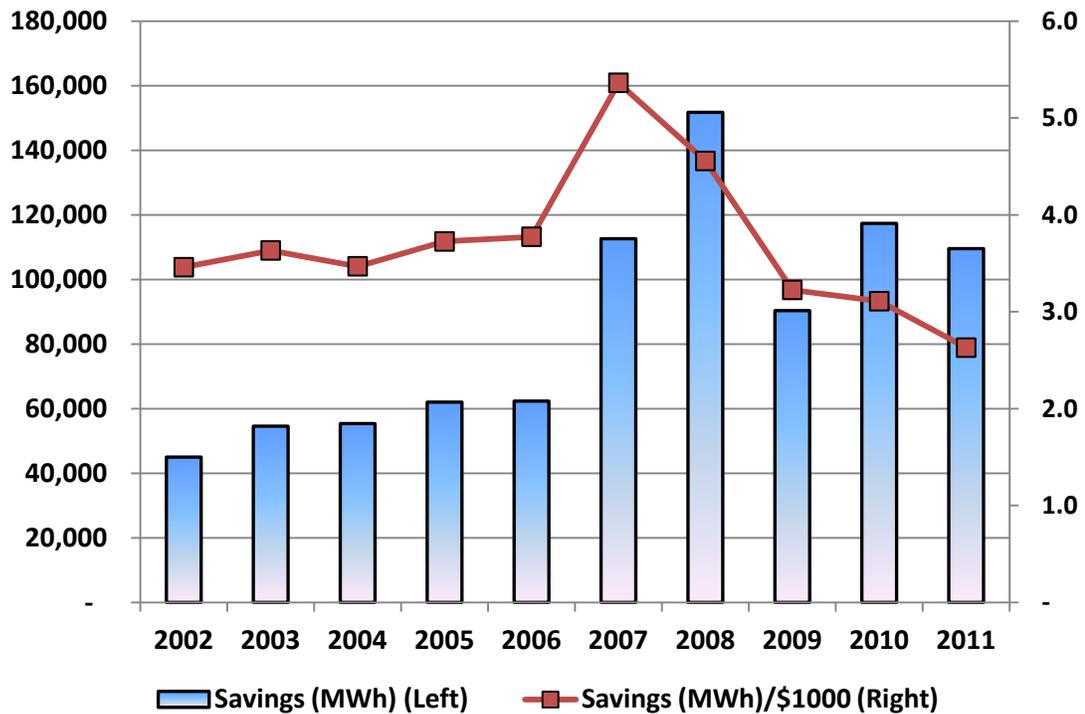
**First Year Electric Efficiency Savings\*\* (in MWh) and Average Efficiency Expenditure Per First Year MWh**

	MWh Saved Per \$1000 Efficiency Expenditure**			
	EV	BED	EV	BED
2002	40,557	4,438	3.69	4.14
2003	51,216	3,346	3.95	3.61
2004	51,863	3,500	3.71	4.14
2005	57,055	4,948	3.92	5.75
2006	56,070	6,254	3.94	6.26
2007	102,914	9,679	5.61	8.61
2008	144,425	7,299	4.83	4.86
2009	84,854	5,481	3.42	4.53
2010	110,872	6,462	3.47	3.45
2011	101,283	8,239	3.14	3.86

\*Estimates are for 1st year electric savings and do not reflect savings over the remaining 'expected' lifetime of the DSM investment.

\*\*Includes only utility initiatives & acquisitions expenditures, excludes expenditures by participants, incentives and other.

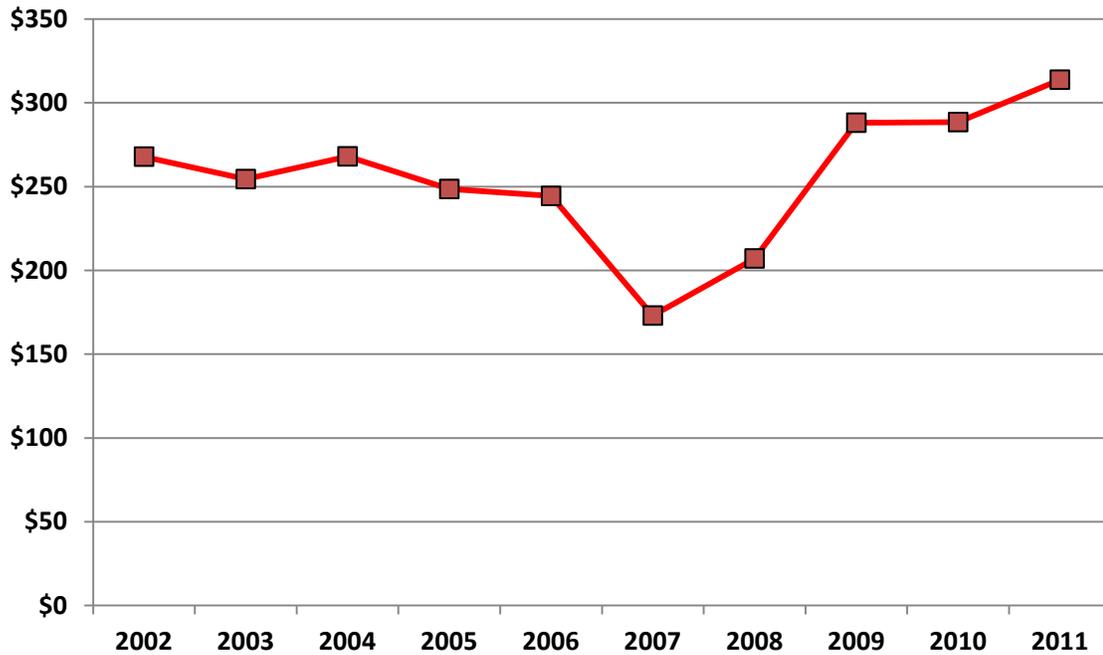
**First Year Electric Efficiency Savings\*\* (in MWh) and Average Efficiency Expenditure Per First Year MWh**



\*Estimates are for 1st year electric savings and do not reflect savings over the remaining 'expected' lifetime of the DSM investment.

\*\*Includes only utility initiatives & acquisitions expenditures, excludes expenditures by participants, incentives and other.

**Electric Efficiency Program Costs\* Per First Year MWh Electric Saved, Vermont**



\*Includes EVT +BED

**Electric Efficiency End Use Savings\* (in First Year MWh), 2011**

End Use	EVT		+	BED		=	Total	
	No. Participants	Net MWh Saved		No. Participants	Net MWh Saved		No. Participants	Net MWh Saved
Lighting	20,183	75,317		861	6,497		21,044	81,814
Refrig	4,544	4,885		690	620		5,234	5,505
Industrial Process	49	4,734					49	4,734
Ventilation	811	3,700		35	395		846	4,095
Motors	214	3,284		3	15		217	3,299
Other	2,369	2,623		1	0		2,370	2,623
Air condition	1,401	1,820		161	102		1,562	1,922
Cook & Laundry	4,919	1,629		512	146		5,431	1,775
Monitor/Metering	2,087	1,562					2,087	1,562
Hot Water	1,308	938		135	204		1,443	1,142
Space Heat	582	792		22	34		604	826
Consumer electronics				1,506	225		1,506	225

\*Estimates are for 1st year electric savings and do not reflect savings over the remaining expected lifetime of the DSM investment.



**Participation (No.) in Thermal Efficiency Programs, Vermont**

	(No. Participants w/installs)	
	<u>EVT</u>	<u>VGS</u>
2002		982
2003		1,486
2004		1,640
2005		1,746
2006		1,829
2007		1,888
2008		1,857
2009		2,074
2010	1,011	2,287
2011	1,657	1,858

Source: PSD, EVT, BED

**Thermal Efficiency Program End Uses, Savings in Million BTU (MMBTU), Vermont, 2011**

	EVT		VGS	
	No. Participants*	1st Year MMBTU Saved**	No. Participants*	1st Year MMBTU Saved**
Heating Eq.	1,428	34,720	1,099	92,543
Hot Water	291	2,663	1,355	7,924
Ventilation	179	869	136	1,466
Shell (bldg)			231	8,151
Process/Motors	29	42	3	818
Cook/Laundry	19	0		
Other	112	12,400	40	179
<b>Total</b>	<b>1,657</b>	<b>50,694</b>	<b>1,858</b>	<b>111,081</b>

\*A participant may install >1 end use efficiency product.

\*\*Thermal efficiency initiative may save electricity and water, as well as BTU.

# Telecommunications

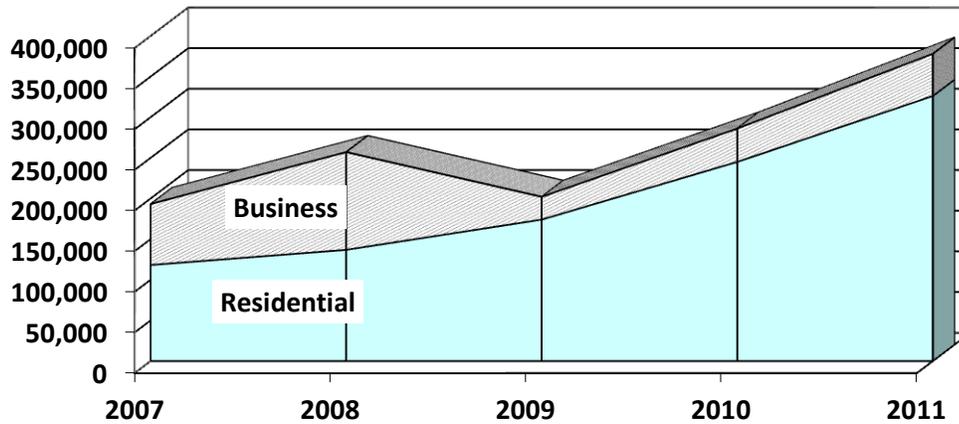
**Vermont Internet Connections (Number) By Type of End User  
(Over 200 Kbps in at least one direction)**

	<b>Residential</b>	<b>+</b>	<b>Business</b>	<b>=</b>	<b>Total</b>
2007	118,146		75,005		193,151
2008	136,780		120,285		257,065
2009	174,000		28,000		202,000
2010	245,000		41,000		286,000
2011	326,000		52,000		377,000

Note: All figures are for June of year shown.

Source: FCC, *Internet Access Services Report*, Released 9/10, 3/11, 6/12; and *High-Speed Services for Internet Access Report*, Released 3/08, 7/09.

**Vermont High Speed Connections (Number) By End-User**



**Internet Connections (Number) By State  
(Connections over 200 Kbps in at least one direction)**

<b>State</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>Annual Growth Rate</b>
Vermont	193,151	257,065	202,000	286,000	377,000	18%
Maine	349,868	428,904	438,000	588,000	743,000	21%
Massachusetts	2,660,501	3,392,831	2,856,000	3,577,000	4,792,000	16%
New Hampshire	544,115	681,535	537,000	672,000	866,000	12%
US	100,921,647	132,813,984	116,374,000	149,531,000	206,124,000	20%

Source: FCC, *Internet Access Services Report*, Released 9/10, 3/11, 6/12; and *High-Speed Services for Internet Access Report*, Released 3/08, 7/09.

Note: All figures are for June of year shown

**Method of Internet Delivery, Vermont, 2003, 2012**

Internet Delivery	Household		Business	
	<u>2003</u>	<u>2012</u>	<u>2003</u>	<u>2012</u>
Dial-up	71.0%	3.0%	46.6%	3.5%
Cable Modem	15.3%	30.5%	19.1%	33.0%
DSL	10.3%	35.0%	20.7%	50.0%
Fixed Wireless	0.4%	9.0%	1.3%	5.5%
Fiber Optic	N/A	1.4%	N/A	2.0%
Mobile Wireless	N/A	11.6%	N/A	1.4%
Satellite	N/A	3.3%	N/A	3.5%
Other	N/A	2.7%	6.5%	4.9%

Source: Vermont Public Service Department, *Vermont Telecommunications Survey Report*, 2003, 2012

**Number of Internet Connections (Thous.) By Technology By State, 2011**  
**(Connections over 200 Kbps in at least one direction)**

State	ADSL	Cable Modem	Mobile Wireless	Other	=	Total
Vermont	87	104	169	17		377
Maine	134	286	304	19		743
Massachusetts	*	1,401	2,633	*		4,792
New Hampshire	87	340	415	24		866
Nationwide	31,610	46,698	119,556	8,260		206,124

\*Data withheld to maintain firm confidentiality

Source: FCC, *Internet Access Services Report*, Table 18, June 2012

## Telephone Consumer Complaints, 2006-2010

	2006	2007	2008	2009	2010
<b>Incumbent Local Exchange Carriers</b>					
TOC of VT (Fairpoint Northern NE) <sup>1</sup>	245	169	218	930	636
Fairpoint of VT (formerly Northland)	15	13	8	4	8
Franklin Telephone	0	0	0	0	0
Shoreham Telephone	0	0	1	0	0
TDS Ludlow Telephone	0	1	0	2	0
TDS Northfield Telephone	0	1	0	0	0
TDS Perkinsville Telephone	0	0	2	0	0
Topsham Telephone	0	0	0	0	0
VTel	7	0	7	0	3
Waitsfield & Champlain Valley Telecom	2	0	1	3	3
<b>Competitive Local Exchange Carriers</b>					
BCN Telecom	1	1	3	2	1
Burlington Telecom	1	1	0	0	1
Excel/Matrix Telecom	3	3	3	0	0
Level 3	0	0	5	0	2
Lightship	2	0	2	0	0
Metropolitan Telecom (Mettel)	1	0	0	1	11
One Communications <sup>2</sup>	0	3	8	6	10
OneStar Long Distance	0	0	0	0	1
SoVerNet Communications	1	4	3	9	10
Telcove of Vermont, Inc.	0	0	1	0	0
Verizon Business (formerly MCI)	50	10	10	6	0
<b>Toll Companies With 5 or More Complaints<sup>3</sup></b>					
AT&T	9	7	13	7	13
Excel/Matrix Telecom	0	3	1	1	0
LDCB	0	0	0	0	0
MCI	10	0	3	1	2
OneStar	0	0	1	0	0
Sprint	0	0	0	0	1
Verizon	8	0	0	1	1
<b>VOIP Providers<sup>3</sup></b>					
Comcast	0	2	5	8	16
Charter	0	0	0	0	0
Vonage	0	1	0	0	0
<b>Total</b>	<b>355</b>	<b>219</b>	<b>295</b>	<b>981</b>	<b>719</b>

<sup>1</sup> Formerly Verizon<sup>2</sup> One Communications was formed by the mergers and acquisitions of the Conversent, CTC and Choice One Communications companies<sup>3</sup> Access line information not available for toll companies or VOIP providers

Vermont Incumbent Local Exchange Carriers' (ILEC) Local Rates, 2010

Company	Rate per minute of local use				Fee for Basic Dial Tone	
	Home Exchange		EAS		Residential	Business
	Peak	Off-Peak	Peak	Off-Peak		
TOC of VT (FairPoint Communications)	\$0.022	\$0.005	\$0.000	\$0.000	\$13.15	\$32.00
VTel	\$0.022	\$0.005	\$0.022	\$0.005	\$12.70	\$23.25
FairPoint of Vermont (formerly Northland)	\$0.010	\$0.005	\$0.025	\$0.005	\$13.20	\$23.65
Waitsfield Telecom* (WCVT)	\$0.010	\$0.005	\$0.022	\$0.010	\$13.40	\$26.40
Champlain Valley Telecom* (WCVT)	\$0.010	\$0.005	\$0.022	\$0.010	\$13.40	\$26.40
Shoreham Telephone	\$0.014	\$0.005	\$0.020	\$0.005	\$6.15	\$10.25
Topsham Telephone	\$0.000	\$0.000	\$0.035	\$0.015	\$12.15	\$19.37
Franklin Telephone**	\$0.000	\$0.000	\$0.030	\$0.010	\$10.00	\$18.00
TDS Ludlow Telephone	TDS Co's have declining rate structure, 300 minutes or less - No Charge; 301-600				\$12.90	\$21.65
TDS Northfield Telephone	minutes - 2.5 cents; 601-900 minutes - 1.5 cents; 901+ minutes - 0.5 cents. Exception:				\$13.40	\$22.15
TDS Perkinsville Telephone	Northfield charges 1.5 cents for 301-900.				\$12.90	\$21.65

\* Waitsfield & Champlain Valley Telecom has different caps for their Waitsfield Telecom and Champlain Valley Telecom exchanges and have been divided in the above table.

\*\* Franklin Telephone has a different basic dial tone fee for seasonal (May-October) residential customers of \$15.00.

Note: Dial tone rates do not include mileage charges, where applicable. Residential caps are in addition to dial tone rates. Residential rates reflect rate with lowest level of included usage.

Source: Vermont Public Service Department, 2010 Annual Reports

## Selected Consumer Monthly Broadband Prices, 2011, Vermont

Comcast Cable	Cable modem	Vermont, various U.S.	\$49.95	6 Mbps/1 Mbps	Installation fee: \$34.99. Modem rental fee: \$7.
Telephone Operating Company of VT (Fairpoint)	DSL	Vermont, various U.S.	\$49.99	5 Mbps/1 Mbps	Requires 1 year contract, phone service, \$100.99 with phone & DSL.
VTel	DSL or Fiber	Southern Vermont	\$34.95	24 Mbps (up to 1 Gbps where fiber is available)	Requires phone service, \$29.95 with some bundles. Installation fee: \$99 (\$0 with 1 year commitment)
SoVerNet (National Mobile)	DSL	Vermont	\$40.00	5 Mbps/1 Mbps	Requires 1 year contract. Installation fee: \$100 (waived if combined with voice service)
Burlington Telecom	Fiber	Burlington	\$55.00	8Mbps/8 Mbps	Installation fee: \$60.
Fairpoint of Vermont	DSL	North Vermont	\$59.99	7.1 Mbps/1 Mbps	Requires 1 year contract, \$71.99 without contract.
Waitsfield & Champlain Valley Telecom	DSL	West Central Vermont	\$39.95	6 Mbps/1 Mbps	Requires \$25/mo phone service. Technician install (optional): \$50. Modem rental: \$3.95/mo.
Great Auk Wireless	WISP	Vermont, NH	\$49.95	1.5 Mbps download	Activation fee: \$29.95.
Kingdom Connection	WISP	North East VT	\$99.95	1536 Kbps download	Requires 1 year contract. Installation fee: \$300. Equipment rental fee: \$8.95/mo.
Verizon	Cable Modem	various U.S.	\$49.99	15 Mbps/5 Mbps	Requires 1 year contract. Installation fee: \$49.99.
AT&T	DSL	various U.S.	\$19.95	6 Mbps download	Requires 1 year contract. Activation fee: \$36.
Hughes Network Systems, LLC	Satellite	global	\$89.99	2 Mbps/300 Kbps	Activation fee: \$99. Equipment leasing fee: \$9.99/mo.

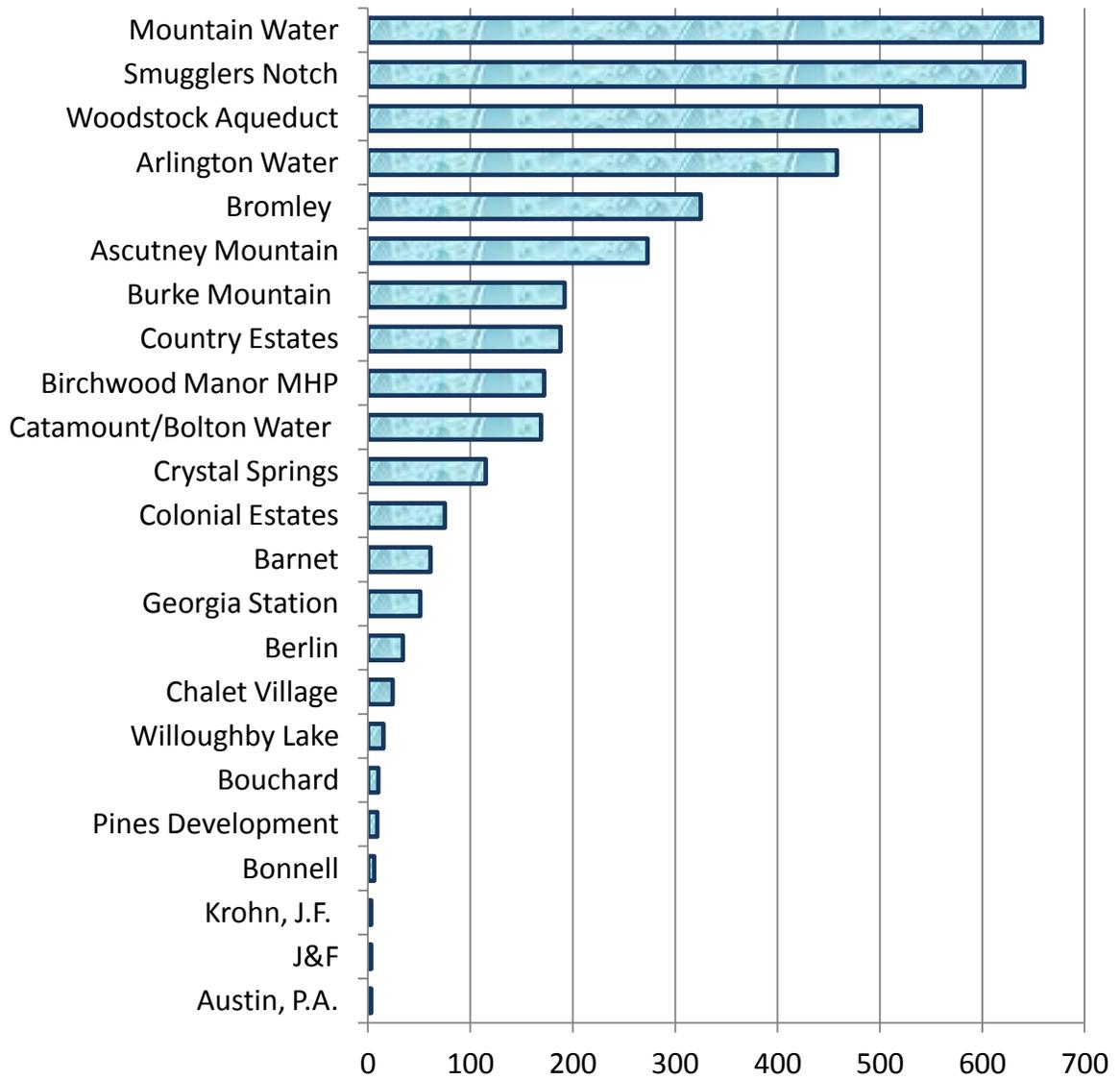
\* FCC adopted a minimum speed of 4 Mbps download and 1 Mbps upload to be considered "broadband" in its Sixth Broadband Deployment Report, released in July 2010. All plans listed are the least expensive available from providers to meet those speeds.

Note: Prices are for services with speed as described. Other service levels/speeds may be offered at other prices.

Source: Prices were web-published rates in effect September 2011.

# Water

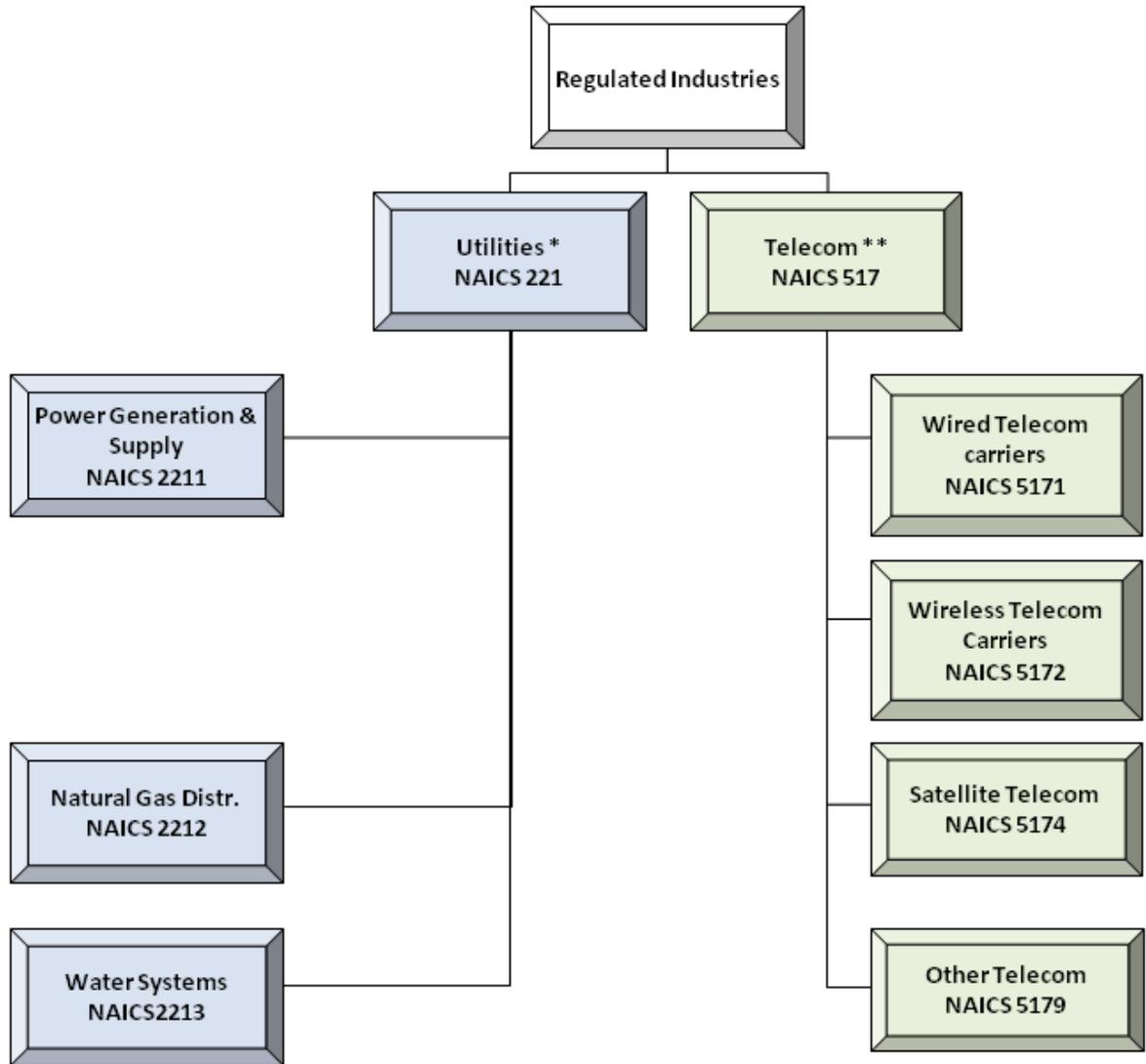
Number of Water Connections\*, Vermont, 2011



\*A Water Connection is the service connection from the water main to a dwelling or building. The figures represent only private water utilities under the jurisdiction of the Public Service Board. The Board and PSD have no jurisdiction over municipal water systems, fire districts, homeowners associations or mobile home parks.

# Regulated Industries

Regulated Industries Data Organization Chart, Vermont



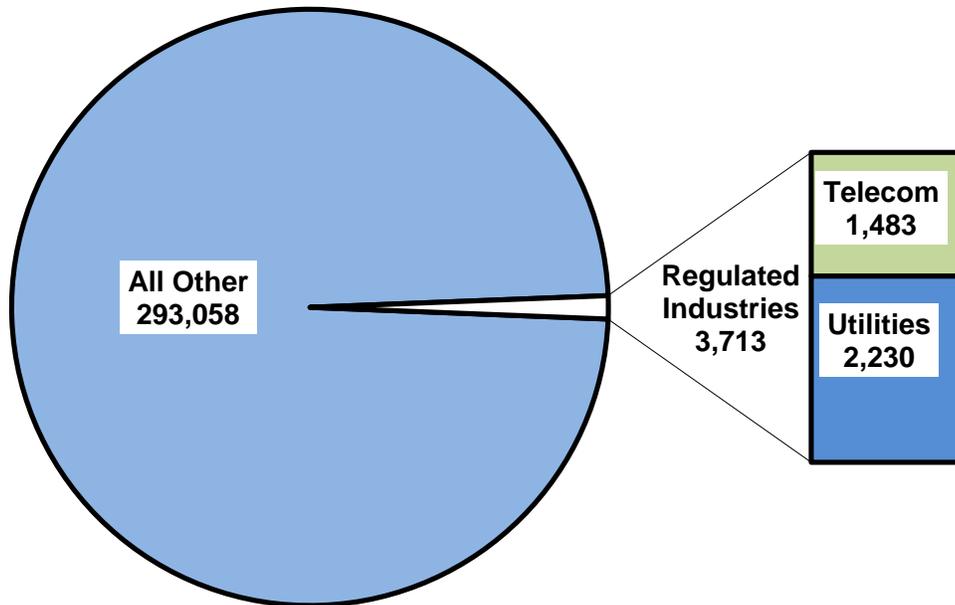
**221 Utilities \***

The Utilities subsector provides electric power, natural gas, steam supply, water supply, and sewage removal through a permanent infrastructure of lines, mains, and pipes. Establishments in this subsector are grouped together based on the utility service provided and the particular system or facilities required to perform the service.

**517 Telecommunications \*\***

The Telecommunications subsector is primarily engaged in operating, and/or providing access to facilities, and services for the transmission of voice, data, text, sound, and video (e.g., telephony, including Voice over Internet Protocol (VoIP); cable and satellite television distribution services; internet access; telecommunications reselling services).

Payroll Employment, Total and Regulated Industries, Vermont, 2010



Payroll Employment, Total and Regulated Industries, Vermont

Year	Total Vermont	All Other	Regulated Industries			Percent of VT		
			Utilities	Telecom	Total Regulated Industries	Utilities	Telecom	Total Regulated Industries
2001	298,020	294,112	2,044	1,864	3,908	0.7%	0.6%	1.3%
2002	295,443	291,563	2,123	1,757	3,880	0.7%	0.6%	1.3%
2003	294,395	290,572	2,147	1,676	3,823	0.7%	0.6%	1.3%
2004	298,454	294,784	2,132	1,538	3,670	0.7%	0.5%	1.2%
2005	300,919	297,294	2,122	1,503	3,625	0.7%	0.5%	1.2%
2006	303,205	299,576	2,144	1,485	3,629	0.7%	0.5%	1.2%
2007	303,448	299,709	2,138	1,601	3,739	0.7%	0.5%	1.2%
2008	302,627	298,976	2,142	1,509	3,651	0.7%	0.5%	1.2%
2009	292,406	288,696	2,172	1,538	3,710	0.7%	0.5%	1.3%
2010	293,058	289,345	2,230	1,483	3,713	0.8%	0.5%	1.3%

Source: BLS, US Dept of Labor

## Payroll Employment Vermont Regulated Industries, 2001-10

Year	Utilities			+ Telecom	= Total Regulated Industries
	Local Gov't Utility	Priv Utility	Total		
2001	391	1,653	2,044	1,864	3,908
2002	413	1,710	2,123	1,757	3,880
2003	419	1,728	2,147	1,676	3,823
2004	418	1,714	2,132	1,538	3,670
2005	419	1,703	2,122	1,503	3,625
2006	419	1,725	2,144	1,485	3,629
2007	401	1,737	2,138	1,601	3,739
2008	393	1,749	2,142	1,509	3,651
2009	416	1,756	2,172	1,538	3,710
2010	429	1,801	2,230	1,483	3,713
Growth Rate			1.0%	-2.5%	-0.6%

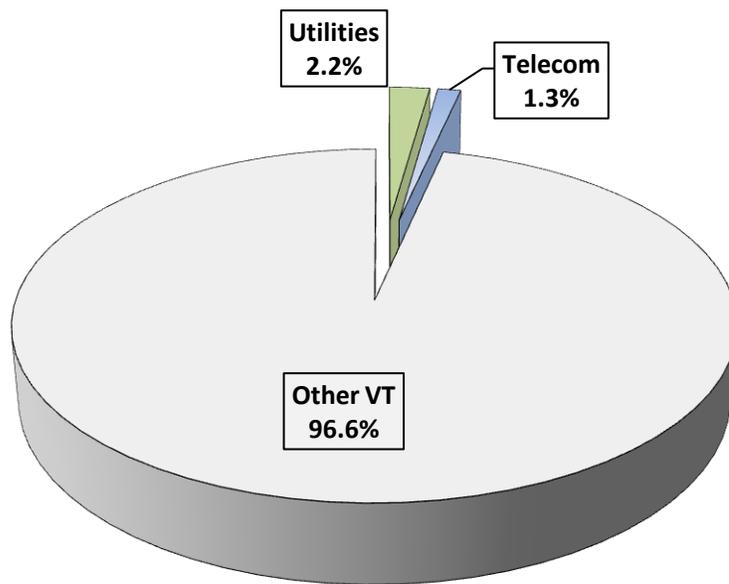
Source: BLS, US Dept of Labor

## Total Wages Regulated Industries, Vermont (in \$000's)

Year	Utilities			+ Telecom	= Total Regulated Industries
	Local Gov't Utility	Priv Utility	Total		
2001	\$15,754	\$106,884	\$122,638	\$94,582	\$217,220
2002	\$16,777	\$120,308	\$137,085	\$93,409	\$230,494
2003	\$18,169	\$118,652	\$136,821	\$94,447	\$231,268
2004	\$18,601	\$134,877	\$153,478	\$92,502	\$245,980
2005	\$19,108	\$137,690	\$156,798	\$89,260	\$246,058
2006	\$19,582	\$138,781	\$158,363	\$87,991	\$246,354
2007	\$19,808	\$151,765	\$171,573	\$96,723	\$268,296
2008	\$21,848	\$157,289	\$179,137	\$100,085	\$279,222
2009	\$22,128	\$154,322	\$176,450	\$101,279	\$277,729
2010	\$22,803	\$166,095	\$188,898	\$98,108	\$287,006
Growth rate:			4.9%	0.4%	3.1%

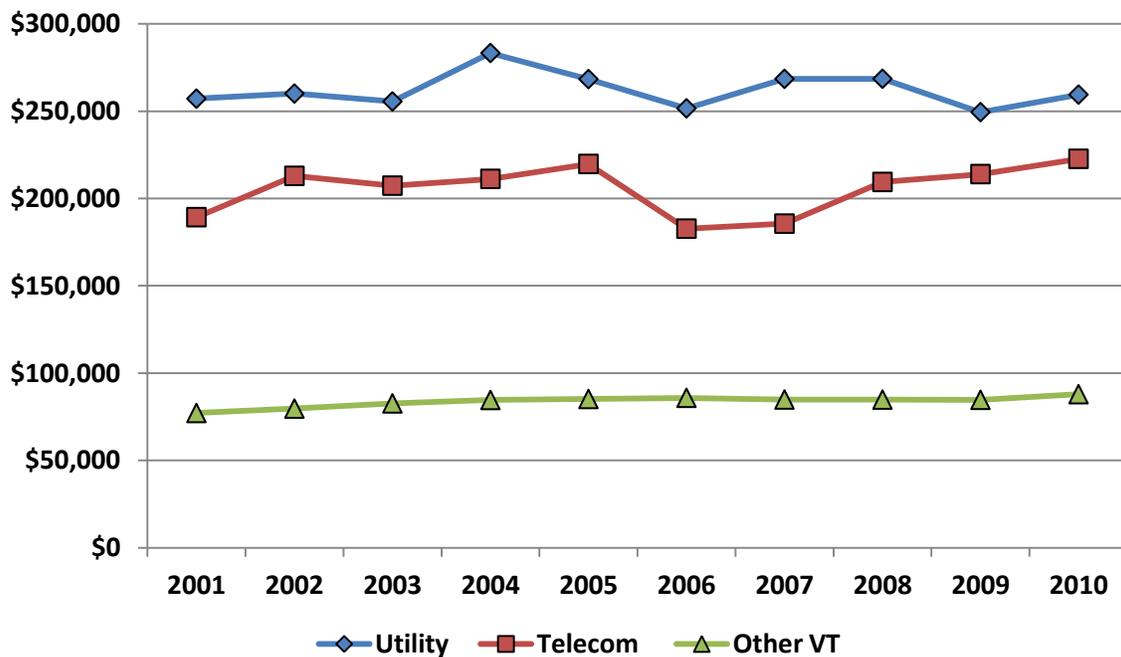
Source: BLS, US Dept of Labor

Utility & Telecom Percent of Vermont Gross Domestic Product, 2010



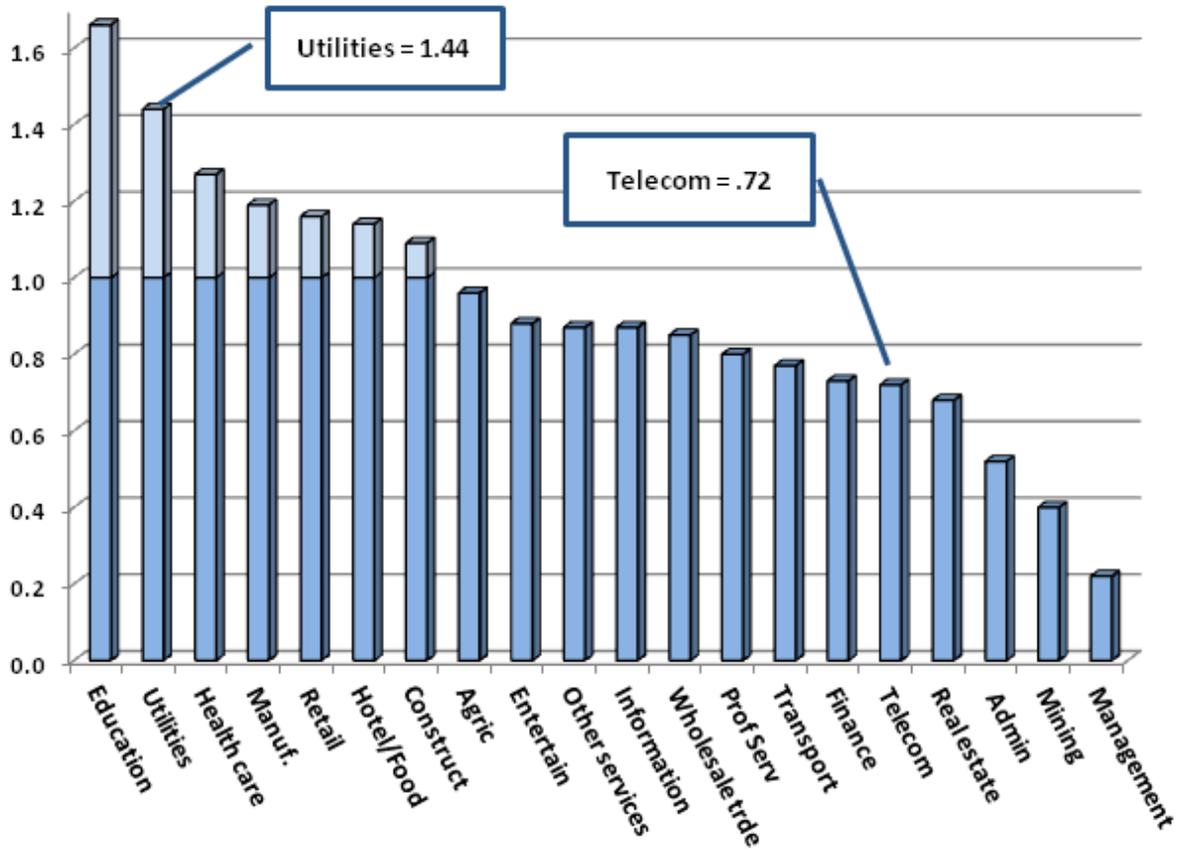
Source: BEA, US Dept of Commerce

Real GDP (2012\$) Per Employee, Utility, Telecom, and Other Vermont



Source: BLS, US Dept of Labor, BEA, US Dept of Commerce

Employment Location Quotients, Vermont Industries, 2010



Note: What are Location Quotients (LQ's)? An LQ is a statistic that measures a region's (in this case Vermont's) industrial specialization relative to a larger geographic unit (US). An LQ is computed as an industry's share of a regional total for some employment divided by the industry's share of the national total for the same measure. For example, an LQ of 1.0 in agriculture would mean that Vermont and the US are equally specialized in agriculture; while an LQ < 1.0 means the state has a lower concentration in agriculture than the nation.

# Glossary

**A**

**AMI** Advanced Metering Infrastructure is a term denoting electricity meters that measure and record usage data at a minimum, in hourly intervals, and provide usage data to both consumers and energy companies at least once daily.

**B**

**Biodiesel** Any liquid biofuel suitable as a diesel fuel substitute or diesel fuel additive or extender. Biodiesel fuels are typically made from oils such as soybeans, rapeseed, or sunflowers, or from animal tallow. Biodiesel can also be made from hydrocarbons derived from agricultural products such as rice hulls.

**Biofuels** Liquid fuels and blending components produced from biomass (plant) feedstocks, used primarily for transportation.

**Biomass** Organic nonfossil material of biological origin constituting a renewable energy source.

**Broadband** Refers to evolving digital technologies that provide consumers a signal switched facility capable of providing integrated access to voice, high-speed data service, video-demand services, and interactive delivery services at a speed of over 200 kbps in at least one direction.

**Btu conversion factor** A factor for converting energy data between one unit of measurement and British thermal units (Btu). Btu conversion factors are generally used to convert energy data from physical units of measure (such as barrels, cubic feet, or short tons) into the energy-equivalent measure of Btu.

**C**

**Capacity**

The maximum rated output of a generator, or other electric power production equipment under specific conditions designated by the manufacturer. Installed generator nameplate capacity is commonly expressed in megawatts (MW) and is usually indicated on a nameplate physically attached to the generator.

**Capacity factor** The ratio of the electrical energy produced by a generating unit for the period of time considered to the electrical energy that could have been produced at continuous full power operation during the same period.

**D**

**Demand** See Energy demand.

**Demand-Side Management (DSM)** The planning, implementation, and monitoring of utility activities designed to encourage consumers to modify patterns of electricity usage, including the timing and level of electricity demand. It refers to only energy and load-shape modifying activities that are undertaken in response to utility-administered programs. Demand-Side Management covers the complete range of load-shape objectives, including strategic conservation and load management, as well as strategic load growth.

**Public Service Department** The Department of Public Service is an agency within the executive branch of Vermont state government. Its charge is to represent the public interest in matters regarding energy, telecommunications, water and wastewater.

**Digital Subscriber Line (DSL)** Digital Subscriber Line is a technology for bringing high-speed and high-bandwidth information to homes and small businesses over ordinary copper telephone lines already installed in hundreds of millions of homes and businesses worldwide. With DSL, consumers and businesses take advantage of having a dedicated, always-on connection to the Internet.

DOE	Department of Energy.
DSM costs	The costs incurred by the utility to achieve the capacity and energy savings from the Demand-Side Management Program. Costs incurred by customers or third parties are to be excluded.
<b>E</b>	
EIA	The Energy Information Administration. An independent agency within the U.S. Department of Energy that develops surveys, collects energy data, and analyzes and models energy issues. For more information see: <a href="http://www.eia.gov/">http://www.eia.gov/</a>
Electric Power	The rate at which electric energy is transferred. Electric power is measured by capacity and is commonly expressed in megawatts (MW).
Electric Rate	The price set for a specified amount and type of electricity by class of service in an electric rate schedule or sales contract.
Electric Utility	Any entity that generates, transmits, or distributes electricity and recovers the cost of its generation, transmission or distribution assets and operations, either directly or indirectly, through cost-based rates set by a separate regulatory authority (e.g., Vermont Public Service Board), or is owned by a governmental unit or the consumers that the entity serves.
Emissions	Anthropogenic releases of gases to the atmosphere. In the context of global climate change, they consist of radiatively important greenhouse gases (e.g., the release of carbon dioxide during fuel combustion).
Energy Demand	The requirement for energy as an input to provide products and/or services.
Energy Supply	Energy made available for future disposition. Supply can be considered and measured from the point of view of the energy provider or the receiver.
<b>F</b>	
Fuel	Any material substance that can be consumed to supply heat or power. Included are petroleum, coal, and natural gas (the fossil fuels), and other consumable materials, such as uranium, biomass, and hydrogen.
Fuel Oil	A liquid petroleum product less volatile than gasoline, used as an energy source. Fuel oil includes distillate fuel oil (No. 1, No. 2, and No. 4), and residual fuel oil (No. 5 and No. 6).
<b>G</b>	
Generation	The process of producing electric energy by transforming other forms of energy; also, the amount of electric energy produced, expressed in kilowatt hours.
Gigawatthour (GWh)	One billion watthours.
Greenhouse gases	Those gases, such as water vapor, carbon dioxide, nitrous oxide, methane, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride, that are transparent to solar (short-wave) radiation but opaque to long-wave (infrared) radiation, thus preventing long-wave radiant energy from leaving Earth's atmosphere. The net effect is a trapping of absorbed radiation and a tendency to warm the planet's surface.
<b>H</b>	
Hydro-Quebec	Hydro-Québec is a crown corporation that provides electricity to Quebec, Canada and the north-eastern parts of the United States. Hydro-Québec's total installed capacity in 2008 was 35,190 MW, approximately 97% of which is from hydroelectric sources. Hydro-Québec is one of the world's largest producers of hydroelectric power.

**I**

ISO New England ISO New England is the regional transmission organization, serving Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont. It coordinates, controls and monitors an electricity transmission grid that is larger with much higher voltages than the typical power company's distribution grid. It also operates the regional wholesale market for electrical power.

**K**

Kilowatthour (kWh) A measure of electricity defined as a unit of work or energy, measured as 1 kilowatt (1,000watts) of power expended for 1 hour. One kWh is equivalent to 3,412 Btu.

**L**

LNG The abbreviation for Liquefied Natural Gas.

Load Factor The ratio of the average load to peak load during a specified time interval.

**M**

Mcf One thousand cubic feet.

Megawatt (MW) One million watts of electricity.

MMbtu One million British thermal units.

MMcf One million cubic feet.

**N**

Natural Gas A gaseous mixture of hydrocarbon compounds, the primary one being methane.

New York Power Authority (NYPA): A New York State public benefit corporation and the largest state-owned power organization in the US. NYPA operates 17 generating facilities and more than 1,400 circuit-miles of transmission lines. The New York Power Authority sells electric power to government agencies, community-owned electric systems and rural electric cooperatives, companies, private utilities for resale (without profit) to their customers, and to neighboring states, under federal requirements

Net Metered Systems

Permit a customer to own and operate a small generator on the customer side of the meter. Also known as customer-side generation, net metered systems serve to offset the amount of generation for which the customer is billed. Also, any excess power at the end of the month can be sold back to the utility. These systems are generally small, intermittent generators such as those using solar and wind energy.

**O**

Oil A mixture of hydrocarbons usually existing in the liquid state in natural underground pools or reservoirs. Natural gas is often found in association with oil. Also see Petroleum.

Output The amount of power or energy produced by a generating unit, station, or system.

**P**

Petroleum	A broadly defined class of liquid hydrocarbon mixtures. Included are crude oil, lease condensate, unfinished oils, refined products obtained from the processing of crude oil, and natural gas plant liquids. Note: Volumes of finished petroleum products include non hydrocarbon compounds, such as additives and detergents, after they have been blended into the products.
Photovoltaic (PV)	The field of technology and research related to the application of solar cells for energy by converting sunlight directly into electricity.
Plant	A term commonly used either as a synonym for an industrial establishment or a generating facility.
Public Service Board	The Public Service Board is a quasi-judicial board that supervises the rates, quality of service, and overall financial management of Vermont's public utilities: cable television, electric, gas, telecommunications, water and large wastewater companies. It also reviews the environmental and economic impacts of energy purchases and facilities, the safety of hydroelectric dams, the financial aspects of nuclear plant decommissioning and radioactive waste storage, and the rates paid to independent power producers. The Board's mission is to ensure the provision of high quality public utility services in Vermont at minimum reasonable costs, measured over time periods consistent with the long-term public good of the state.

**R**

Rates	The authorized charges per unit or level of consumption for a specified time period for any of the classes of utility services provided to a customer.
Reliability (electric system)	A measure of the ability of the system to continue operation while some lines or generators are out of service. Reliability deals with the performance of the system under stress.

**S**

Sustainably Priced Energy for Economic Development (SPEED) Initiatives	A program designed is to achieve the goals of 30 V.S.A. § 8001 related to the promotion of renewable energy and long-term stably priced contracts for such energy that are anticipated to be below the market price.
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**T**

Tariff	A published volume of rate schedules and general terms and conditions under which a product or service will be supplied.
Thermal	A term used to identify a type of electric generating station, capacity, capability, or output in which the source of energy for the prime mover is heat.

**U**

Utility distribution companies	An electric utility is a publicly regulated company engaged in the distribution of electricity for sale in a guaranteed service territory with a guaranteed rate of return. Electric distribution companies may be investor owned, publicly owned, or a cooperative.
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**V**

- Vermont Gas System Vermont's only natural gas company with 40,000 residential and commercial customers in Chittenden and Franklin counties.
- Vermont Public Power Supply Authority (VPPSA) A private authority of the State of Vermont empowered under 30 VSA, Chapter 84 with broad authority to contract to buy and sell wholesale power within Vermont and wholesale and retail power outside Vermont, as well as to issue tax-free debt on behalf of municipal and cooperative electric utilities within Vermont.

**W**

- Wood Energy Wood and wood products used as fuel, including round wood (cord wood), limb wood, wood chips, pellets, bark, sawdust, forest residues, charcoal, pulp waste, and spent pulping liquor.

# Data Source(s)

**Data Sources**

Burlington Electric Department	<a href="http://www.burlingtonelectric.c">http://www.burlingtonelectric.c</a>
Bureau of Economic Analysis, US Department of Commerce	<a href="http://www.bea.gov/">http://www.bea.gov/</a>
Bureau of Labor Statistics, US Department of Labor	<a href="http://www.bls.gov/home.htm">http://www.bls.gov/home.htm</a>
Green Mountain Power	<a href="http://www.greenmountainpow">http://www.greenmountainpow</a>
Efficiency Vermont	<a href="http://www.encyvermont">http://www.encyvermont</a>
Energy Information Administration (US DOE)	<a href="http://www.eia.doe.gov/">http://www.eia.doe.gov/</a>
Federal Communications Commission (FCC)	<a href="http://www.fcc.gov/">http://www.fcc.gov/</a>
Federal Energy Regulatory Commission	<a href="http://www.ferc.gov/">http://www.ferc.gov/</a>
New England Independent System Operator (ISO-NE)	<a href="http://www.iso-ne.com/">http://www.iso-ne.com/</a>
US Department of Energy	<a href="http://www.energy.gov/">http://www.energy.gov/</a>
Vermont Gas Systems Inc.	<a href="http://www.vermontgas.com">http://www.vermontgas.com</a>
Vermont Public Service Department	<a href="http://publicservice.vermont.g">http://publicservice.vermont.g</a>