Appendices
Part 2—Existing Conditions

APPENDIX B1: TIER I GHG INVENTORY

	REDC Regions	Counties	HDD (5-yr avg)	CDD (5-yr avg)	Employment (2010 avg)	Population (2010)	VMT (millions)	Occupied housing units	Number of Occupied Households Using Each Heating Fuel								Electricity Consumption		
									Natural gas	Bottled, tank, or LP gas	Electricity	Fuel oil, kerosene, etc.	Coal or coke	Wood	Solar energy	Other fuel	No fuel used	NYISO Zone	GWh/Zone	GWh/region
	Sources:		Weather Underground (65F ref)		NYS Dept. of Labor	US Census Bureau	2005 FHWA		American Community Survey (2008-2010 3-yr average)									NYISO Map	NYISO (2011)	
0	**New York State**				**8,341,310**	**19,378,102**	**141,348**	**7,221,564**	**3,920,557**	**222,795**	**639,532**	**2,178,016**	**19,382**	**136,879**	**1,430**	**61,449**	**41,524**			**162,787**
1	**Western New York**		**6,609**	**747**	**612,357**	**1,399,677**	**13,832**	**573,780**	**468,695**	**20,051**	**41,870**	**20,608**	**1,856**	**15,921**	**0**	**3,822**	**957**			**13,848.2**
2		Allegany				48,946	472	18,844	9,564	1,699	1,768	1,623	794	3,089	0	301	6	b	9,963.0	490.1
3		Cattaraugus				80,317	854	32,757	16,742	4,036	4,300	2,824	439	3,881	0	489	46	a	15,440.0	794.3
4		Chautauqua				134,905	1,563	55,348	38,743	3,483	6,979	1,719	153	3,168	0	1,018	85	a	15,440.0	1,334.2
5		Erie				919,040	9,248	378,811	335,109	6,556	22,432	7,787	399	4,308	0	1,491	729	a	15,440.0	9,088.9
6		Niagara				216,469	1,695	88,020	68,537	4,277	6,391	6,655	71	1,475	0	523	91	a	15,440.0	2,140.8
7	**Finger Lakes**		**6,570**	**752**	**532,994**	**1,217,156**	**13,250**	**474,137**	**332,814**	**28,202**	**56,091**	**35,103**	**2,847**	**14,495**	**0**	**3,342**	**1,243**			**12,297.0**
8		Genesee				60,079	1,205	23,865	13,896	2,649	2,103	3,622	185	1,154	0	256	0	a	15,440.0	594.2
9		Orleans				42,883	346	15,873	6,575	2,714	1,788	3,146	72	1,426	0	131	21	a	15,440.0	424.1
10		Monroe				744,344	7,680	292,539	239,750	4,477	34,072	9,899	125	1,875	0	1,548	793	b	9,963.0	7,453.2
11		Wayne				93,772	722	36,497	19,449	3,968	4,645	5,517	231	2,323	0	307	57	b	9,963.0	939.0
12		Wyoming				42,155	288	15,242	7,139	1,599	2,149	1,778	464	1,852	0	226	35	a	15,440.0	416.9
13		Livingston				65,393	854	24,063	11,638	3,314	3,401	2,872	249	2,104	0	451	34	a	15,440.0	646.7
14		Ontario				107,931	1,464	43,627	25,873	4,647	5,227	4,876	467	2,025	0	277	235	b	9,963.0	1,080.7
15		Yates				25,348	195	9,184	2,722	2,308	1,379	1,330	234	1,151	0	48	12	c	16,396.0	310.5
16		Seneca				35,251	497	13,247	5,772	2,526	1,327	2,063	820	585	0	98	56	c	16,396.0	431.8
17	**Southern Tier**		**7,025**	**568**	**263,974**	**657,909**	**7,405**	**263,509**	**133,742**	**22,288**	**29,633**	**47,903**	**5,215**	**21,638**	**116**	**2,520**	**454**			**7,686.5**
18		Steuben				98,990	1,366	41,013	22,124	4,802	3,819	3,543	1,847	4,233	0	581	64	c	16,396.0	1,212.5
19		Schuyler				18,343	186	7,482	1,499	1,738	866	1,898	495	882	0	97	7	c	16,396.0	224.7
20		Chemung				88,830	918	35,681	26,112	1,362	3,005	2,617	528	1,754	0	257	46	c	16,396.0	1,088.1
21		Tompkins				101,564	748	38,446	19,415	4,023	6,964	4,807	564	2,200	24	355	94	c	16,396.0	1,244.1
22		Tioga				51,125	689	20,634	6,220	1,750	1,727	8,011	915	1,911	0	100	0	c	16,396.0	626.2
23		Broome				200,600	2,452	79,993	52,690	4,635	8,323	9,818	460	3,334	20	511	202	c	16,396.0	2,457.2
24		Chenango				50,477	482	19,922	3,276	1,944	2,981	7,737	288	3,396	25	270	5	e	7,773.0	427.4
25		Delaware				47,980	564	20,338	2,406	2,034	1,948	9,472	118	3,928	47	349	36	e	7,773.0	406.3
26	**Central New York**		**6,618**	**808**	**336,266**	**791,939**	**8,433**	**307,363**	**195,862**	**21,016**	**36,616**	**34,537**	**2,517**	**13,421**	**50**	**2,655**	**689**			**9,422.8**
27		Onondaga				467,026	4,951	185,031	139,742	4,886	24,682	10,669	730	2,502	50	1,242	528	c	16,396.0	5,720.6
28		Cayuga				80,026	822	31,764	15,830	4,035	2,937	5,594	408	2,396	0	543	21	c	16,396.0	980.2
29		Cortland				49,336	673	17,795	8,956	1,473	2,141	3,151	471	1,462	0	112	29	c	16,396.0	604.3
30		Madison				73,442	801	26,752	11,302	2,603	2,453	7,442	576	2,078	0	264	34	e	7,773.0	621.9
31		Oswego				122,109	1,185	46,021	20,032	8,019	4,403	7,681	332	4,983	0	494	77	c	16,396.0	1,495.7
32	**Mohawk Valley**		**7,096**	**670**	**193,086**	**500,155**	**5,686**	**198,701**	**89,372**	**12,570**	**19,464**	**58,939**	**696**	**14,207**	**39**	**2,737**	**677**			**4,350.1**
33		Fulton				55,531	397	22,896	9,292	1,494	1,676	7,586	40	2,005	0	803	0	f	11,275.0	516.3
34		Herkimer				64,519	852	26,478	11,206	1,524	3,260	7,539	135	2,445	0	306	63	e	7,773.0	546.3
35		Montgomery				50,219	853	20,196	9,275	905	1,678	6,315	135	1,343	0	526	19	f	11,275.0	466.9
36		Oneida				234,878	2,371	91,332	55,184	3,955	8,795	18,930	161	3,020	39	684	564	e	7,773.0	1,988.9
37		Otsego				62,259	671	24,862	3,999	3,378	2,344	11,346	118	3,413	0	243	21	e	7,773.0	527.2
38		Schoharie				32,749	542	12,937	416	1,314	1,711	7,223	107	1,981	0	175	10	f	11,275.0	304.5
39	**North Country**		**9,032**	**372**	**151,343**	**433,193**	**4,364**	**166,636**	**38,995**	**13,627**	**25,850**	**64,837**	**559**	**20,746**	**21**	**1,539**	**462**			**8,519.4**
40		Clinton				82,128	808	31,359	3,115	1,075	8,805	14,850	108	2,974	0	316	116	d	5,510.0	5,510.0
41		Essex				39,370	596	16,235	1,099	1,602	2,687	8,402	34	2,294	0	117	0	f	11,275.0	366.0
42		Franklin				51,599	441	18,790	1,157	1,176	2,096	11,511	190	2,467	0	150	43	e	7,773.0	436.9
43		Hamilton				4,836	119	2,381	100	431	177	1,153	0	481	0	11	28	f	11,275.0	45.0
44		Jefferson				116,229	1,259	44,796	18,446	5,230	7,060	9,853	174	3,354	0	577	102	e	7,773.0	984.2
45		Lewis				27,087	257	10,601	942	1,132	695	4,637	19	3,110	2	33	31	e	7,773.0	229.4
46		St. Lawrence				111,944	884	42,474	14,136	2,981	4,330	14,431	34	6,066	19	335	142	e	7,773.0	947.9
47	**Capital Region**		**6,519**	**814**	**492,397**	**1,079,207**	**12,263**	**431,114**	**228,567**	**24,044**	**51,596**	**104,022**	**919**	**17,914**	**203**	**3,080**	**769**			**9,969.0**
48		Albany				304,204	3,726	122,869	85,735	2,543	16,403	15,094	108	2,005	60	557	364	f	11,275.0	2,828.3
49		Columbia				63,096	848	25,584	2,792	2,107	3,658	14,731	128	1,885	0	241	42	f	11,275.0	586.6
50		Greene				49,221	811	18,443	1,097	1,761	2,164	11,681	100	1,540	0	100	0	g	10,478.0	392.7
51		Rensselaer				159,429	1,533	64,110	30,093	3,996	7,323	18,838	80	3,090	59	476	155	f	11,275.0	1,482.3
52		Saratoga				219,607	2,277	88,009	48,574	7,369	10,683	16,886	180	3,570	31	660	56	f	11,275.0	2,041.8
53		Schenectady				154,727	1,539	58,423	42,792	1,404	5,593	7,660	0	637	17	274	46	f	11,275.0	1,438.6
54		Warren				65,707	943	28,795	12,336	2,408	3,168	8,429	185	1,746	36	398	89	f	11,275.0	610.9
55		Washington				63,216	587	24,881	5,148	2,456	2,604	10,703	138	3,441	0	374	17	f	11,275.0	587.8
56	**Mid-Hudson**		**5,936**	**926**	**857,286**	**2,290,851**	**25,850**	**812,813**	**341,995**	**26,847**	**74,537**	**348,647**	**1,668**	**12,996**	**146**	**4,422**	**1,555**			**19,849.0**
57		Dutchess				297,488	3,180	107,419	27,027	3,807	12,850	59,891	359	2,406	28	808	243	g	10,478.0	2,373.3
58		Orange				372,813	4,696	124,621	57,994	5,313	11,704	45,465	437	2,346	21	1,085	256	g	10,478.0	2,974.2
59		Putnam				99,710	3,085	35,260	2,509	1,193	6,631	23,844	86	814	0	164	19	g	10,478.0	795.5
60		Rockland				311,687	2,731	98,283	86,620	1,078	6,530	3,350	19	310	0	190	186	g	10,478.0	2,486.5
61		Sullivan				77,547	784	30,251	1,011	4,711	3,881	17,710	203	2,607	0	118	10	e	7,773.0	656.6
62		Ulster				182,493	2,208	70,441	13,226	5,586	6,799	40,529	203	3,475	41	515	67	g	10,478.0	1,455.9
63		Westchester				949,113	9,166	346,538	153,608	5,159	26,142	157,858	361	1,038	56	1,542	774	i + h	9,107.0	9,107.0

	REDC Regions	Counties	HDD (5-yr avg)	CDD (5-yr avg)	Employment (2010 avg)	Population (2010)	VMT (millions)	Occupied housing units	Number of Occupied Households Using Each Heating Fuel									Electricity Consumption		
									Natural gas	Bottled, tank, or LP gas	Electricity	Fuel oil, kerosene, etc.	Coal or coke	Wood	Solar energy	Other fuel	No fuel used	NYISO Zone	GWh/Zone	GWh/region
64	**New York City**		**4,776**	**1,194**	**3,590,842**	**8,175,133**	**23,739**	**3,056,088**	**1,712,346**	**42,053**	**251,460**	**975,471**	**2,572**	**2,103**	**753**	**35,830**	**33,500**			**54,283.0**
65		Bronx				1,385,108	4,721	473,368	144,343	4,773	31,516	283,026	671	249	62	4,202	4,526	j	54,283.0	9,197.1
66		New York				1,585,873	4,278	734,354	249,028	9,676	130,990	306,577	885	245	366	19,210	17,377	j	54,283.0	10,530.2
67		Queens				2,230,722	7,839	775,202	514,846	10,984	40,548	198,160	252	544	71	5,634	4,163	j	54,283.0	14,812.0
68		Kings				2,504,700	4,899	909,727	661,823	15,009	44,002	173,487	721	941	230	6,546	6,968	j	54,283.0	16,631.2
69		Richmond				468,730	2,002	163,437	142,306	1,611	4,404	14,221	43	124	24	238	466	j	54,283.0	3,112.4
70	**Long Island**		**5,224**	**954**	**1,185,356**	**2,832,882**	**31,735**	**937,573**	**378,257**	**12,020**	**52,519**	**488,197**	**437**	**3,339**	**102**	**1,461**	**1,241**			**22,562.0**
71		Nassau				1,339,532	11,920	442,625	209,468	3,736	21,721	205,660	140	754	24	474	648	k	22,562.0	10,668.5
72		Suffolk				1,493,350	19,815	494,948	168,789	8,284	30,798	282,537	297	2,585	78	987	593	k	22,562.0	11,893.5

REDC Regions	Employment (2010 avg)	Population (2010)	Number of Occupied Households Using Each Heating Fuel					Residential Consumption per Fuel Source (MMBtu)					VMT (millions)	Transportation Consumption per Vehicle Type (MMBtu)				Electricity Consumption (GWh)
			Natural gas	Bottled, tank, or LP gas	Fuel oil, kerosene, etc.	Coal or coke	Wood	Natural gas	Bottled, tank, or LP gas	Fuel oil, kerosene, etc.	Coal or coke	Wood		LDV - Automobiles	LDV - Light Trucks	Medium-Duty Vehicles	Heavy-Duty Vehicles	
Sources:	NYS Dept. of Labor	US Census Bureau	American Community Survey (2008-2010 3-yr avg)					EIA (2009) - for statewide data only					2005 DOT					NYISO (2011)
New York State	8,215,901	19,378,102	3,920,557	222,795	2,178,016	19,382	136,879	413600000	21100000	129500000	100000	50500000	141,348	353517946	401528240	35365270	73159910	162,787
Western New York	612,357	1,399,677	468,695	20,051	20,608	1,856	15,921	49445079	1898948	1225306	9576		13,832	34595403	39293709	3460859	7159457	13,848
Finger Lakes	532,994	1,217,156	332,814	28,202	35,103	2,847	14,495	35110284	2670896	2087147	14689		13,250	33138268	37638685	3315090	6857906	12,297
Southern Tier	263,974	657,909	133,742	22,288	47,903	5,215	21,638	14109141	2110805	2848206	26906		7,405	18521326	21036656	1852839	3832955	7,686
Central New York	336,266	791,939	195,862	21,016	34,537	2,517	13,421	20662504	1990339	2053493	12986		8,433	21090826	23955113	2109887	4364709	9,423
Mohawk Valley	193,086	500,155	89,372	12,570	58,939	696	14,207	9428318	1190453	3504382	3591		5,686	14222077	16153538	1422750	2943234	4,350
North Country	151,343	433,193	38,995	13,627	64,837	559	20,746	4113786	1290557	3855064	2884		4,364	10914568	12396845	1091873	2258750	8,519
Capital Region	492,397	1,079,207	228,567	24,044	104,022	919	17,914	24112725	2277109	6184917	4742		12,263	30670836	34836157	3068253	6347275	9,969
Mid-Hudson	857,286	2,290,851	341,995	26,847	348,647	1,668	12,996	36078836	2542569	20729777	8606		25,850	64652432	73432700	6467708	13379706	19,849
New York City	3,590,842	8,175,133	1,712,346	42,053	975,471	2,572	2,103	180644308	3982667	57999342	13270		23,739	59372822	67436081	5939545	12287100	54,283
Long Island	1,185,356	2,832,882	378,257	12,020	488,197	437	3,339	39904303	1138365	29027111	2255		31,735	79370041	90149067	7940029	16425489	22,562

Residential Heating Emission Rates	Carbon (kg/MMBtu)	CH_4 (kg/MMBtu)	CH_4 (kg/TJ)	N_20 (kg/MMBtu)	N_20 (kg/TJ)
Natural gas	14.5	0.001	1	0.001	1
Bottled, tank, or LP gas	17.19	0.001	1.1	0	0
Fuel oil, kerosene, etc.	19.33	0.001	1.4	0	0
Coal or coke	26	0.155	147	0	0
Wood	35.5	0.983	932	0	0

Transportation Emission Rates	CO_2 (kg/MMBtu)	CO_2 (kg/TJ)	CH_4 (g/mi)	CH_4 (mg/km)	N_20 (g/mi)	N_20 (mg/km)
Gasoline	73.07	69300	0.121	75	0.040	25
Diesel	78.13	74100	0.006	4	0.005	3
Weighted Average	73.32	69540	0.115	71.45	0.038	23.9

(IPCC Guidelines for National Greenhouse Gas Inventories 2006)

Transportation Conversions	Fuel Economy (mi/gal)	% of Total VMT
LDV-Automobiles	22.6	48.7%
LDV-Light Trucks	18.1	44.3%
Medium-Duty Vehicles	16.7	3.6%
Heavy-Duty Vehicles	7.4	3.3%

(Oak Ridge National Laboratory)

Transportation Conversions	Energy Content (btu/gal)	NYS Usage per NYSERDA
Gasoline	115400	95%
Diesel	128700	5%
Weighted Average	116065	

(Wikipedia.org)

Electricity Emission Rates	CO_2e (lb/MWh)
NY State Average	826

(NYSERDA RGGI Operating Plan)

Global Warming Potential	CO_2e
Carbon Dioxide (CO_2)	1
Methane (CH_4)	21
Nitrous Oxide (N_2O)	310

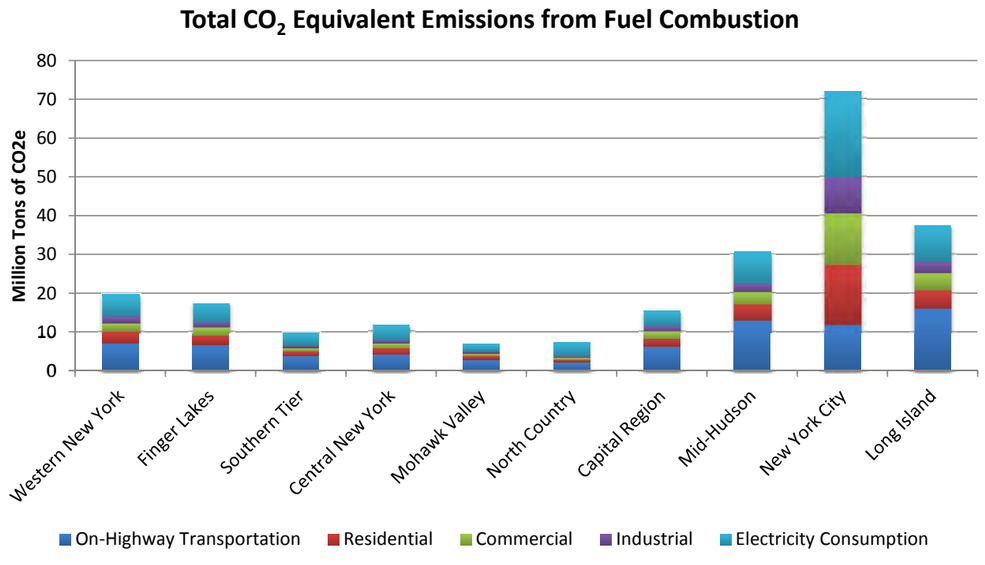
(EPA Regional Greenhouse Gas Inventory Guidance)

Greenhouse Gas Emissions from Fuel Combustion	Million Tons of CO_2 Emissions					Million Tons of CH_4 Emissions (in CO_2 equivalent)					Million Tons of N_20 Emissions (in CO_2 equivalent)				
	On-Highway Transportation	Residential	Commercial	Industrial	Electricity Consumption*	On-Highway Transportation	Residential	Commercial	Industrial	Electricity Consumption	On-Highway Transportation	Residential	Commercial	Industrial	Electricity Consumption
NYS (2007)	93.51	40.69	29.83	21.07	54.01	0.290	0.600	0.160	0.020	0.040	3.620	0.160	0.060	0.050	0.180
Western New York	6.83	3.13	2.22	1.57	5.72	0.037	0.001	0.012	0.001	n/a	0.182	0.018	0.004	0.004	n/a
Finger Lakes	6.54	2.41	1.94	1.37	5.08	0.035	0.001	0.010	0.001	n/a	0.174	0.013	0.004	0.003	n/a
Southern Tier	3.66	1.20	0.96	0.68	3.17	0.020	0.001	0.005	0.001	n/a	0.097	0.005	0.002	0.002	n/a
Central New York	4.16	1.51	1.22	0.86	3.89	0.022	0.001	0.007	0.001	n/a	0.111	0.007	0.002	0.002	n/a
Mohawk Valley	2.81	0.91	0.70	0.50	1.80	0.015	0.000	0.004	0.000	n/a	0.075	0.003	0.001	0.001	n/a
North Country	2.15	0.63	0.55	0.39	3.52	0.012	0.000	0.003	0.000	n/a	0.057	0.001	0.001	0.001	n/a
Capital Region	6.06	2.06	1.79	1.26	4.12	0.033	0.001	0.010	0.001	n/a	0.161	0.009	0.004	0.003	n/a
Mid-Hudson	12.76	3.91	3.11	2.20	8.20	0.069	0.002	0.017	0.002	n/a	0.340	0.013	0.006	0.005	n/a
New York City	11.72	15.40	13.04	9.21	22.42	0.063	0.007	0.070	0.009	n/a	0.312	0.065	0.026	0.022	n/a
Long Island	15.67	4.69	4.30	3.04	9.32	0.085	0.002	0.023	0.003	n/a	0.417	0.014	0.009	0.007	n/a

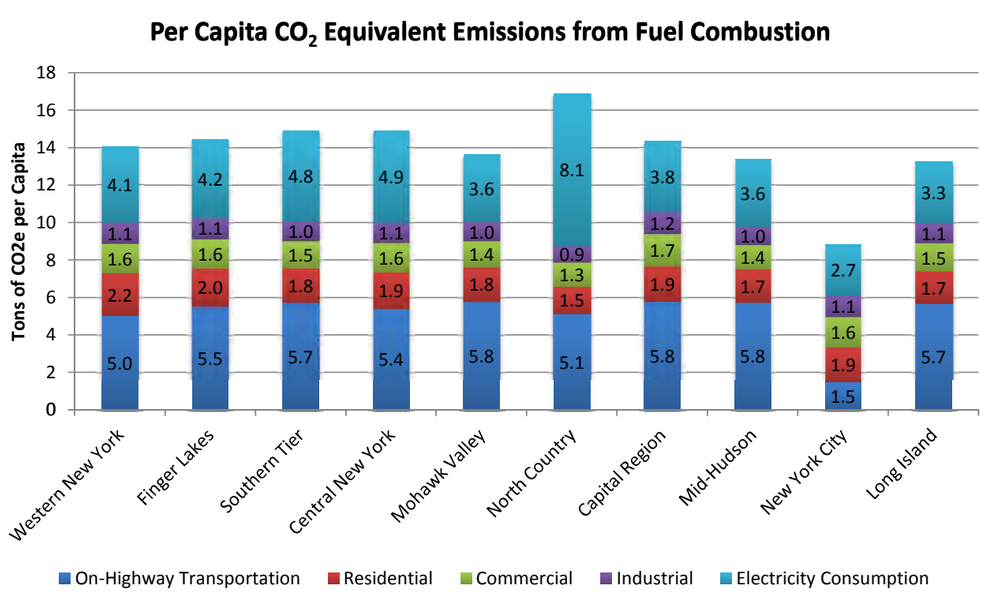
Note: Electricty consumption emissions are represented as CO_2e. CH_4 and N_2O could not be broken out using the data used.

Source: NYS GHG Emissions Inventory and Forecasts for the 2009 State Energy Plan (only used for the statewide emissions figures above)

Fuel Combustion (Inc. Net Imports of Electricity)	Million tons of CO_2 Equivalent Emissions					
	On-Highway Transportation	Residential	Commercial	Industrial	Electricity Consumption	Total
Western New York	7.05	3.15	2.24	1.58	5.72	19.73
Finger Lakes	6.75	2.42	1.95	1.37	5.08	17.57
Southern Tier	3.77	1.20	0.97	0.68	3.17	9.80
Central New York	4.30	1.52	1.23	0.87	3.89	11.80
Mohawk Valley	2.90	0.91	0.71	0.50	1.80	6.81
North Country	2.22	0.63	0.55	0.39	3.52	7.32
Capital Region	6.25	2.06	1.80	1.27	4.12	15.50
Mid-Hudson	13.17	3.93	3.14	2.21	8.20	30.64
New York City	12.10	15.47	13.13	9.24	22.42	72.36
Long Island	16.17	4.70	4.34	3.05	9.32	37.58
Total	74.68	36.00	30.05	21.14	67.23	



Fuel Combustion (Inc. Net Imports of Electricity)	Tons of CO_2 Equivalent Emissions Per Capita					
	On-Highway Transportation	Residential	Commercial	Industrial	Electricity Consumption	Total
Western New York	5.04	2.25	1.60	1.13	4.09	14.10
Finger Lakes	5.55	1.99	1.60	1.13	4.17	14.44
Southern Tier	5.74	1.83	1.47	1.03	4.83	14.89
Central New York	5.43	1.92	1.55	1.09	4.91	14.90
Mohawk Valley	5.79	1.83	1.41	0.99	3.59	13.62
North Country	5.13	1.46	1.28	0.90	8.12	16.90
Capital Region	5.79	1.91	1.67	1.17	3.82	14.36
Mid-Hudson	5.75	1.71	1.37	0.96	3.58	13.37
New York City	1.48	1.89	1.61	1.13	2.74	8.85
Long Island	5.71	1.66	1.53	1.08	3.29	13.26
Total	51.40	18.45	15.09	10.61	43.14	



Western New York	On-Highway Transportation	Residential	Commercial	Industrial	Electricity Consumption	Total
CO_2	6.83	3.13	2.22	1.57	5.72	19.47
CH_4	0.037	0.001	0.012	0.001	n/a	0.052
N_2O	0.182	0.018	0.004	0.004	n/a	0.208
Total	7.049	3.146	2.240	1.576	5.719	**19.729**

Finger Lakes	On-Highway Transportation	Residential	Commercial	Industrial	Electricity Consumption	Total
CO_2	6.54	2.41	1.94	1.37	5.08	17.33
CH_4	0.035	0.001	0.010	0.001	n/a	0.048
N_2O	0.174	0.013	0.004	0.003	n/a	0.194
Total	6.752	2.422	1.949	1.371	5.079	**17.573**

Southern Tier	Transportation	Residential	Commercial	Industrial	Electricity Consumption	Total
CO_2	3.66	1.20	0.96	0.68	3.17	9.67
CH_4	0.020	0.001	0.005	0.001	n/a	0.026
N_2O	0.097	0.005	0.002	0.002	n/a	0.106
Total	3.774	1.205	0.965	0.679	3.175	**9.797**

Central New York	On-Highway Transportation	Residential	Commercial	Industrial	Electricity Consumption	Total
CO_2	4.16	1.51	1.22	0.86	3.89	11.65
CH_4	0.022	0.001	0.007	0.001	n/a	0.030
N_2O	0.111	0.007	0.002	0.002	n/a	0.123
Total	4.297	1.519	1.230	0.865	3.892	**11.803**

Mohawk Valley	On-Highway Transportation	Residential	Commercial	Industrial	Electricity Consumption	Total
CO_2	2.81	0.91	0.70	0.50	1.80	6.71
CH_4	0.015	0.000	0.004	0.000	n/a	0.020
N_2O	0.075	0.003	0.001	0.001	n/a	0.081
Total	2.898	0.913	0.706	0.497	1.797	**6.811**

North Country	Transportation	Residential	Commercial	Industrial	Electricity Consumption	Total
CO_2	2.15	0.63	0.55	0.39	3.52	7.24
CH_4	0.012	0.000	0.003	0.000	n/a	0.015
N_2O	0.057	0.001	0.001	0.001	n/a	0.061
Total	2.224	0.634	0.554	0.389	3.519	**7.319**

Capital Region	On-Highway Transportation	Residential	Commercial	Industrial	Electricity Consumption	Total
CO_2	6.06	2.06	1.79	1.26	4.12	15.28
CH_4	0.033	0.001	0.010	0.001	n/a	0.044
N_2O	0.161	0.009	0.004	0.003	n/a	0.177
Total	6.249	2.065	1.801	1.267	4.117	**15.499**

Mid-Hudson	On-Highway Transportation	Residential	Commercial	Industrial	Electricity Consumption	Total
CO_2	12.76	3.91	3.11	2.20	8.20	30.18
CH_4	0.069	0.002	0.017	0.002	n/a	0.089
N_2O	0.340	0.013	0.006	0.005	n/a	0.364
Total	13.173	3.926	3.136	2.206	8.198	**30.638**

New York City	On-Highway Transportation	Residential	Commercial	Industrial	Electricity Consumption	Total
CO_2	11.72	15.40	13.04	9.21	22.42	71.78
CH_4	0.063	0.007	0.070	0.009	n/a	0.148
N_2O	0.312	0.065	0.026	0.022	n/a	0.425
Total	12.097	15.468	13.134	9.239	22.419	**72.357**

Long Island	On-Highway Transportation	Residential	Commercial	Industrial	Electricity Consumption	Total
CO_2	15.67	4.69	4.30	3.04	9.32	37.02
CH_4	0.085	0.002	0.023	0.003	n/a	0.112
N_2O	0.417	0.014	0.009	0.007	n/a	0.448
Total	16.171	4.702	4.335	3.050	9.318	**37.577**

APPENDIX B2: TIER II GHG INVENTORY

NYSERDA

Cleaner Greener Communities / Climate Smart Communities Regional Level GHG Reporting Template

Instructions

Please use this template to report summary regional GHG inventories to NYSERDA as part of your final deliverables for the regional GHG inventory. Fill it out and rename the sheet "**REDC_NAME.CGC Final GHG Inventory.2010.xlxs**".

In this template there are two tabs, "Emissions by Source" and the "Roll Up Report". Emissions by Source shows all direct and indirect emissions sources considered by the GHG Working Group for inclusion in the inventory, and the Roll Up Report reflects the consensus decision for which sources are to be included when totaling the regions GHG inventory into a single number . The final submission should the two tabs for the REDC in total, and two additional tabs for each county separately. For county tab names, please rename "REDC" to the name of the county.

We understand each region will have its own custom way of managing data and calculations so please cut and paste summary results from from your own data sheets into this template. Although you may create dynamic links to this template from your analysis sheets when filling it out, please submit this template without these links.

Protocol Compliance Statements. In the REDC level tabs only, please fill in Columns P through R, and indicate if your methods adhered to methods in Column O that summarize NY GHG Working Group consensus decisions with "Rec" standing for the recommended methods and "Alt" standing for an acceptable alternative methods. Its not required that all methods adhere to the recommended or alternate methods, but please indicate any deviations, justifications, findings, or recommendations you have for additional methods to consider. It may help you to select Columns O-P and choose the "wrap text" format to help you read the methods.

Please Fill in the Summary Table on the Cover Sheet tab to the right at the conclusion of filling out there data sheets. You may dynamically link these numbers to the other sheets in this template.

Color Coding- in general a Green cell requires a value or entry, a while cell is optional.

Reporting Region	Finger Lakes

REDC Emissions Summary CO2e Roll Up Numbers (MTCDE of MTCO2e)		Population	MTCO2e per capita
Genesee	1,136,082	60,079	18.91
Livingston	922,787	65,393	14.11
Monroe	8,978,673	744,344	12.06
Ontario	1,830,439	107,931	16.96
Orleans	426,168	42,883	9.94
Seneca	551,568	35,251	15.65
Wayne	924,795	93,772	9.86
Wyoming	989,391	42,155	23.47
Yates	360,016	25,348	14.20
REDC in Total	16,119,918	**1,217,156**	**13.24**
REDC in Total	**16,119,918**		

REDC Emissions By Source and Sector
Year: 2010

REDC / County Name	Finger Lakes

Color Code

	REQUIRED, though some data may be zero or considered to small to count
	OPTIONAL, not included in Gross Total
	DO NOT Report Data in these cells

Reporting Template CGC. Emissions in MTCDE (MTCO2e)							Related GHG Metrics / Activity Data		
		Scope 1	Scope 2	Scope 3	Biogenic	Rolled Up?	Metric	Unit	Value
Built Environment	**Residential Energy Consumption**								
FL Electricity Consumption	Electricity / Steam		1,003,997			Yes	Consumption	MMBTU	15,093,554
FL Direct Residental Fuel Consumption	Natural Gas	2,457,416				Yes	Consumption	MMBTU	46,303,439
FL Direct Residental Fuel Consumption	Propane / LPG	205,344				Yes	Consumption	MMBTU	3,247,626
FL Direct Residental Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	216,103				Yes	Consumption	MMBTU	2,912,087
FL Direct Residental Fuel Consumption	Wood	10,565			502,028	Yes	Consumption	MMBTU	5,352,108
	Commercial Energy Consumption								
FL Electricity Consumption	Electricity / Steam		964,950			Yes	Consumption	MMBTU	14,506,538
FL Commercial Direct Fuel Consumption	Natural Gas	1,592,903				Yes	Consumption	MMBTU	30,013,998
FL Commercial Direct Fuel Consumption	Propane / LPG	52,185				Yes	Consumption	MMBTU	825,329
FL Commercial Direct Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	141,697				Yes	Consumption	MMBTU	1,909,428
FL Commercial Direct Fuel Consumption	Residual Fuel Oil (#4 and #6)	-				Yes	Consumption	MMBTU	-
FL Commercial Direct Fuel Consumption	Coal	1,275				Yes	Consumption	MMBTU	12,404
FL Commercial Direct Fuel Consumption	Wood	2,269			107,827	Yes	Consumption	MMBTU	1,149,538
	Industrial Energy Consumption								
FL Electricity Consumption	Electricity / Steam		569,720			Yes	Consumption	MMBTU	8,564,870
FL Industrial Title V Consumption	Natural Gas	280,745				Yes	Consumption	MMBTU	5,289,881
FL Industrial Title V Consumption	Propane / LPG	156				Yes	Consumption	MMBTU	2,459
FL Industrial Title V Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	926				Yes	Consumption	MMBTU	12,484
FL Industrial Title V Consumption	Residual Fuel Oil (#4 and #6)	11,903				Yes	Consumption	MMBTU	157,965
FL Industrial Title V Consumption	Coal	196,030				Yes	Consumption	MMBTU	2,082,610
FL Industrial Title V Consumption	Wood	-			-	Yes	Consumption	MMBTU	-
Energy Generation and Supply	**Energy Generation and Supply**								
FL Elec Generation GHG Analysis	Coal	1,535,272				No	Generation	MMBTU	15,706,588
FL Elec Generation GHG Analysis	Nuclear	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Natural Gas	92,952				No	Generation	MMBTU	1,751,439
FL Elec Generation GHG Analysis	Distillate Fuel Oil (#1, #2 and #4)	2,227				No	Generation	MMBTU	30,014
FL Elec Generation GHG Analysis	Residual Fuel Oil (#4 and #6)	9,417				No	Generation	MMBTU	124,973
FL Elec Generation GHG Analysis	Wood / Biomass	-			-	No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	MSW and Landfill gas	854			169,315	No	MSW Combusted	MMBTU	3,251,672
FL Elec Generation GHG Analysis	Other Wind and Hydro	-							7,331,091
FL Electricity Consumption	Electricity T/D Losses		147,750			Yes	Losses	MMBTU	2,221,201
FL Elec Generation GHG Analysis and FL Direct Fuel Consumption	Natural Gas T/D Losses	615,180				Yes	Losses	MMBTU	
FL Electricity Consumption	Use of SF6 in the Utility Industry	33,983				Yes	Consumption	MMBTU	-
Industrial Processes	**Industrial Processes**								
Not Reported	Cement Production					Yes			
Not Reported	Iron and Steel Production					Yes			
Not Reported	Ferroalloy Production					Yes			
Not Reported	Aluminum Production					Yes			
Not Reported	Paper and Pulp					Yes			
Not Reported	Limestone Use					Yes			
Not Reported	Soda Ash Use					Yes			
Not Reported	Semi-Conductor Manufacturing					Yes			
FL Industrial Sources	Glass Production	37,292				Yes			
Not Reported	Chemical Manufacturing					Yes			
Product Use (Ozone Depleting Substances)	**Product Use (Ozone Depleting Substances)**								
FL Industrial Sources	All Refrigerants- except SF6	278,673				Yes			

Transportation Energy	**On-road**								
FL Emission Summary - Onroad	Motor Gasoline (E-10)	4,273,549			310,163	Yes	Consumption	MMBTU	65,172,504
FL Emission Summary - Onroad	Diesel	771,313				Yes	Consumption	MMBTU	10,530,485
Not Reported	Ethanol (E-85)					No	Consumption	MMBTU	
Not Reported	Biodiesel					No	Consumption	MMBTU	
Not Reported	Electricity Consumption					No	Consumption	MMBTU	
	Rail								
FL Emission Summary - Rail	Diesel	105,505				Yes	Consumption	MMBTU	1,421,471
FL Emission Summary - Rail	Coal Consumption	7				Yes	Consumption	MMBTU	280
FL Emission Summary - Rail	Electric								
	Marine								
FL Emission Summary -Com Marine	Gasoline					Yes	Consumption	MMBTU	
FL Emission Summary -Com Marine	Distillate Fuels	-				Yes	Consumption	MMBTU	-
FL Emission Summary -Com Marine	Residual Fuels	16,434				Yes	Consumption	MMBTU	218,101
	Air								
FL Emission Summary-Aircraft	All Fuels (Jet and Aviation Gasoline)	47,122				No	Consumption	MMBTU	660,343
	Off-road Mobile								
FL Emission Summary-Nonroad	All Fuels (Diesel and Gasoline)	772,613				Yes	Consumption	MMBTU	10,835,100
Waste Management	**Solid Waste Management**								
FL Waste	Scope 1: Actual emissions from Waste Facilities in Region. Scope 3: Forward Order Decay estimates for waste generated in region	596,684		326,347	201,744	Yes - ONLY Scope 3	MSW+CD Generated	Tonnes	1,016,144
Not Reported	MSW incineration (non grid connected)					Yes	MSW+CD Processed	Tonnes	3,089,899
	Sewage Treatment						MSW Sent for Incineration	Tonnes	-
FL Waste water	Central WWTPs and Septic Systems	120,000				Yes	MSW incinerated in Boundary	Tonnes	-
Agriculture	**Livestock**								
GHF_FL_Agriculture	Enteric Fermentation	713,507				Yes			
GHF_FL_Agriculture	Manure management	137,649				Yes			
GHF_FL_Agriculture	**Crop Production and Soil Management**								
GHF_FL_Agriculture	Use of Fertilizer	61,934				Yes			
Not Reported	Crop Residue Incineration					No			
Land Use and Forestry									
GHG_FL_Forest	Urban Forest Annual Reserve	251,202				No			
GHG_FL_Forest	Forest Carbon Reserve (TOTAL)	173,110,876				No			

Grand Totals	Gross Totals	13,107,154	2,686,417	326,347	1,291,077	**16,119,918**
	Total with Aircraft	13,154,277	2,686,417	326,347	1,291,077	**16,167,041**
	Net Totals					

Note: Red text represents text added to original template to provide additional information or clarification

Protocol Compliance Report Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative	Adherence		
	Yes	No	Brief Description of Method and Issues
(Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size	X		Actual electricity sales data is provided for National Grid, NYSEG, RG&E and municipal utilities.
(Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Siz	X		Recommended method used
(Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Siz	X		Recommended method used
(Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Siz	X		Recommended method used
(Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Siz	X		Recommended method used
(Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method.	X		Actual electricity sales data is provided for National Grid, NYSEG, RG&E and municipal utilities.
(Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended metho	X		Recommended method used
(Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt Allocation based on Home Heating, HDD, and Employment only.	X		Recommended method used
(Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt Allocation based on Home Heating, HDD, and Employment only.	X		Recommended method used: includes all Fuel Oil
(Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt Allocation based on Home Heating, HDD, and Employment only.	X		All fuel oil included in Row 24 totals
(Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt Allocation based on Home Heating, HDD, and Employment only.	X		Recommended method used
(Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt Allocation based on Home Heating, HDD, and Employment only.	X		Recommended method used
(Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) allocate SEDS EIA data based allocated by industrial employment	X		Actual electricity sales data is provided for National Grid, NYSEG, RG&E and municipal utilities.
(Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewic industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations.		X	Direct energy use as reported for Title 5 industrial facilities only, additiona allocation based on statewide emissions by industrial employees is not representative of the region, therefore not included
(Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewic industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations.		X	Direct energy use as reported for Title 5 industrial facilities only, additiona allocation based on statewide emissions by industrial employees is not representative of the region, therefore not included
(Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewic industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations.		X	Direct energy use as reported for Title 5 industrial facilities only, additiona allocation based on statewide emissions by industrial employees is not representative of the region, therefore not included
(Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewic industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations.		X	Direct energy use as reported for Title 5 industrial facilities only, additiona allocation based on statewide emissions by industrial employees is not representative of the region, therefore not included
(Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewic industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations.		X	Direct energy use as reported for Title 5 industrial facilities only, additiona allocation based on statewide emissions by industrial employees is not representative of the region, therefore not included
(Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall b reported. For overlap, prioritize EIA 923 Database.	X		EIA 923 database used
(Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall b reported. For overlap, prioritize EIA 923 Database.	X		EIA 923 database used
	X		EIA 923 database used
(Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall b reported. For overlap, prioritize EIA 923 Database.	X		EIA 923 database used
(Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. Wood CO2 emissions reported optionally as biogenic CO2, Ch4 and N2 Emissions required to be reported to Scope 1	X		EIA 923 database used: none to report
(Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. MSW CO2 emissions split as 44% reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1.	X		EIA 923 database used
(Rec) - Acquire utility specific estimate of T/D (in %) and apply that to all consumption (res/commercial/industrial). Report emissions as Scope 2 using region EGRID emission factors consistent with all Scope 2 calculations. (Alt) use a statewide average T/D loss of 5.28% as documented by EPA's EGRID reporting for New York.	X		Alternative method used as stated
(Rec) - Acquire utility specific estimate of T/D (in %), compute as percentage of total residential/commercial/industrial/energy generation. Report as Scope 1 CH4 emissions. (Alt) use a statewide average of 1.8% as documented by National Grid in 2010 PSC Reporting.	X		Alternative method used as stated
(Rec) - acquire utility specific estimate and report as SF6. (Alt) Apportion NYSERDA 2009 Emission Inventory Total for the state to counties based ration of EIA reported total electricity demand to computed regional or county demand for all sectors.	X		Based on conversations with P Groth and J Yeinger, used national 2010 emission inventory total (alternative method)
	X		Nothing to report
	X		Nothing to report
	X		Nothing to report
	X		Nothing to report
	X		Nothing to report
(Rec) Direct Allocation from from EPA MMR only. Small Sources to not to be included at this time.	X		Nothing to report
	X		Nothing to report
	X		Nothing to report
	X		Recommended method used
	X		Nothing to report
(Rec) Use EPA 2009 Draft Guidance method. Allocate national per/capita emissions to counties based on population. Methods include mobile refrigeration	X		Recommended method used

(Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region- appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions.	X		Recommended method used
(Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region- appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions on the ethanol line item.	X		Recommended method used
Optional- Include regional E-85 consumption if you have it, and debit against your gasoline estimate create using VMT. Allocate 15% as gasoline to be reported a Scope 1, and 85% as ethanol to be reported as optional biogenic.	X		Not available
Optional- Include regional biodiesel consumption if you have it, and debit against your diesel estimate create using VMT. Because biodiesel blends change, allocate option biogenic component on this line item only, and retain the diesel fraction on the diesel line item.	X		Not available
Today this will be zero, but as NYSERDA pushes to electrify on-road transportation we will want to report here, debiting against electricity consumption in the other sectors as appropriate.	X		Not available
Freight and Passenger. (Rec) Use direct provider fuel consumption data allocated spatially to location of routes (Alt) Use Nyserda 2002 estimates of Diesı consumption by county directly.	X		Alternative method used
Passenger and Commuter (Rec) Use direct provider electricity consumption data allocated spatially to location of routes (Alt) None identified.	X		Recommended method used Nothing to report
Rec - USE NYSDEC 2007 data from the state emission inventory for the small and pleasure craft categories reported by county (data on Wiggio). For commercial distillate and bunkers, No consensus method identified- please document methods used.	X X X		Recreational boating included in non-road data using NONROAD modeling CO2 emissions calculated by multiplying EPA estimated annual SO2 emission rate by ratio of CO2 to SO2 emissions for applicable fuel.
Optional Scope 1- Estimate Landing and Take off Cycle emissions using a dispersion model such as EDMS, or with related data from the NYSDEC for the 2007 state emission inventory. Optional Scope 3, use FAA statistics on departure miles from regional airport, allocate jet fuel use to it, then allocate to counties by fraction of population served	X		Scope 1 option, using EDMS. Totals are also included in GHG Inventory reporting as part of Sustainability Plan
Rec - USE NYSDEC 2007 NONROAD data from the state emission inventory (data on Wiggio) for all categories except small marine.	X		Recommended Method used as stated, but includes recreational marine
This is fugitive CH4 emissions from landfills. There are two required Scopes. Scope 1 - Estimate of actual emissions in regional boundary. (rec) use MMR or Title 5 (annual landfill reporting) data directly for facilities (data on Wiggio). For recently closed landfills or for areas without reported data, use a First Order Decay model to estimate emissions. Scope 3- emissions footprint attributed to current waste generation regardless of where it is treated. (rec) Estimate county level MSW and C/D waste generation and apply a representative FOD model with prevailing CH4 captures rates forward-casted 50 years to estimate the footprint.	X		Scope 1 reported as actual 2010 waste facility emissions reported (EPA MRR). Scope 3 calculated and reported as recommended, assuming an average 75% methane capture rate
Rec - for any MSW incinerated that does not generate grid connected power, compute emissions. MSW CO2 emissions split. 44% shall be reported as Scope 1 a part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1	X		None Reported
Determine population covered by WWTPs. (Rec)- Use the ICLEI Local Government Operations Protocol and apply to all facilities in the region. (Alt) use methods as described in the EPA 2009 Draft GHG guidance to translate populations served into emissions using default data. Determine population covered by Septic Systems, and apply the default emissions / capita as described in the ICLEI Local Government Operations Protocol.		X	Based on conversations with P. Groth and J. Yeinger, used State Inventory Tool and regional population, allocated to county by population
(Rec) Methods as described in the EPA 2009 guidance and executed in the EPA's State Inventory Tool. Use locally resolved fertilizer, crop, and livestock population from either the 2007 Ag census or the US NASS system to get county-level data and make calculations for each county.	X X X X		Recommended method used Recommended method used Recommended method used None reported
Optional Source and Sink. Use methods described in the EPA 2009 Guidance. Use local forest inventory data, or use the US Forest Services online inventory tool for forests. For carbon stock factors use the National Council for Air and Stream Improvement's Carbon On-Line Estimator.	X		As stated
(NCASI 2008) Use the		X	Baseline Total calculated using method recommended and reported for information, change is not reported or relevant to WG discussions

Sum Totals in columns for all EXCEPT ANY FORESTRY SINKS. Totals in the Scope 1 column can be a considered a physical roll up of emissions that occur i boundary, and is analogous to reporting that is done for state and federal GHG inventories, and for air quality management.

Value above MINUS and reported optional forestry sinks.

REDC GHG Emissions Roll Up Report
Year: 2010
(all emissions in Column D, when summed will equal the total County or REDC protocol compliant GHG emissions estimate)

REDC / County Name	Finger Lakes

Color Code

REQUIRED for the Roll Up Report, though some data may be zero, N/A, or considered to small to count

Report NO Data in cell

DRAFT Roll Up Report CGC. Emissions in MTCDE								
		CO2e	CO2	CH4	N2O	PFC	HFC	SF6
Built Environment	**Residential Energy Consumption**							
	Electricity / Steam	1,003,997	999,114	672	4,211			
	Natural Gas	2,457,416	2,455,008	972	1,435			
	Propane / LPG	205,344	204,535	205	604			
	Distillate Fuel Oil (#1, #2, Kerosene)	216,103	215,378	183	542			
	Wood	10,565	-	3,597	6,968			
	Commercial Energy Consumption							
	Electricity / Steam	964,950	960,257	646	4,047			
	Natural Gas	1,592,903	1,591,342	630	930			
	Propane / LPG	52,185	51,979	52	154			
	Distillate Fuel Oil (#1, #2, Kerosene)	141,697	141,221	120	355			
	Residual Fuel Oil (#4 and #6)	-						
	Coal	1,275	1,266	3	6			
	Wood	2,269	-	772	1,497			
	Industrial Energy Consumption							
	Electricity / Steam	569,720	566,949	381	2,390			
	Natural Gas	280,745	280,470	111	164			
	Propane / LPG	156	155	0	0			
	Distillate Fuel Oil (#1, #2, Kerosene)	926	923	1	2			
	Residual Fuel Oil (#4 and #6)	11,903	11,863	10	29			
	Coal	196,030	194,516	481	1,033			
	Wood	-		-	-			
	Energy Generation and Supply							
	Electricity T/D Losses	147,750	147,032	99	620			
	Natural Gas T/D Losses	615,180		615,180				
	Use of SF6 in the Utility Industry	33,983						33,983
	Industrial Processes							
	Cement Production							
	Glass Production	37,292						
	Iron and Steel Production							
	Ferroalloy Production							
	Aluminum Production							
	Paper and Pulp							
	Limestone Use							
	Soda Ash Use							
	Semi-Conductor Manufacturing							
	Product Use (ODS Substitutes)							
	All Refrigerants- except utility SF6	278,673					278,673	
Transportation Energy	**On-road ALL (Total reflects subtraction of ethanol)**							
	Motor Gasoline (E-10)	4,273,549	4,258,449	11,280	3,821			
	Diesel	771,313	768,758	1,899	655			
	Ethanol							
	Biodiesel							
	Rail							
	Diesel	105,505	105,151	264	90			
	Coal	7	7	0.02	0.01			
	Marine							
	Gasoline							
	Distillate	-	-	-	-			
	Residual Fuel Oil	16,434	16,379	41	14			
	Off-road Mobile							
	All Fuels (Diesel and Gasoline)	772,613	769,937	1,998	678			
Waste Management	**Solid Waste Management**							
	Landfill Methane from FOD of waste generated	326,347	-	326,347	-			
	MSW incineration (non grid connected)							
	Sewage Treatment							
	Central WWTPs and Septic Systems (Total reflects rounding)	120,000		80,000	40,000			
Agriculture	**Livestock**							
	Enteric Fementation	713,507		713,507				
	Manure management	137,649		114,656	22,994			
	Crop Production and Soil Management							
	Use of Fertilizer	61,934			61,934			
	Crop Residue Incineration							
Grand Totals		16,119,918	13,740,690	1,874,107	155,173	-	278,673	33,983

Note: Red text represents text added to original template to provide additional information or clarification

REDC Emissions By Source and Sector
Year: 2010

REDC / County Name	Genesee County

Color Code

	REQUIRED, though some data may be zero or considered to small to count
	OPTIONAL
	DO NOT Report Data in these cells

DRAFT Reporting Template CGC. Emissions in MTCDE							Related GHG Metrics / Activity Data		
		Scope 1	Scope 2	Scope 3	Biogenic	Rolled Up?	Metric	Unit	Value
Built Environment	**Residential Energy Consumption**								
FL Electricity Consumption	Electricity / Steam		38,926			Yes	Consumption	MMBTU	585,195
FL Direct Residental Fuel Consumption	Natural Gas	100,316				Yes	Consumption	MMBTU	1,890,192
FL Direct Residental Fuel Consumption	Propane / LPG	18,666				Yes	Consumption	MMBTU	295,220
FL Direct Residental Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	21,679				Yes	Consumption	MMBTU	292,139
FL Direct Residental Fuel Consumption	Wood	811			38,518	Yes	Consumption	MMBTU	410,640
	Commercial Energy Consumption								
FL Electricity Consumption	Electricity / Steam		21,105			Yes	Consumption	MMBTU	317,278
FL Commercial Direct Fuel Consumption	Natural Gas	60,681				Yes	Consumption	MMBTU	1,143,380
FL Commercial Direct Fuel Consumption	Propane / LPG	5,473				Yes	Consumption	MMBTU	86,556
FL Commercial Direct Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	15,613				Yes	Consumption	MMBTU	210,395
FL Commercial Direct Fuel Consumption	Residual Fuel Oil (#4 and #6)	-				Yes	Consumption	MMBTU	-
FL Commercial Direct Fuel Consumption	Coal	97				Yes	Consumption	MMBTU	939
FL Commercial Direct Fuel Consumption	Wood	206			9,812	Yes	Consumption	MMBTU	104,604
	Industrial Energy Consumption								
FL Electricity Consumption	Electricity / Steam		32,433			Yes	Consumption	MMBTU	487,578
FL Industrial Title V Consumption	Natural Gas	40,225				Yes	Consumption	MMBTU	757,926
FL Industrial Title V Consumption	Propane / LPG	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Residual Fuel Oil (#4 and #6)	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Coal	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Wood	-			-	Yes	Consumption	MMBTU	-
Energy Generation and Supply	**Energy Generation and Supply**								
FL Elec Generation GHG Analysis	Coal	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Nuclear	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Natural Gas	34,322				No	Generation	MMBTU	646,698
FL Elec Generation GHG Analysis	Distillate Fuel Oil (#1, #2 and #4)	3				No	Generation	MMBTU	36
FL Elec Generation GHG Analysis	Residual Fuel Oil (#4 and #6)	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Wood / Biomass	-			-	No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	MSW and Landfill gas	-			-	No	MSW Combusted	MMBTU	-
FL Elec Generation GHG Analysis	Other Wind and Hydro	-							-
FL Electricity Consumption	Electricity T/D Losses		5,381			Yes	Losses	MMBTU	80,901
FL Elec Generation GHG Analysis and FL Direct Fuel Consumption	Natural Gas T/D Losses	31,103				Yes	Losses	MMBTU	
FL Electricity Consumption	Use of SF6 in the Utility Industry	1,238				Yes	Consumption	MMBTU	-
Industrial Processes	**Industrial Processes**								
Not Reported	Cement Production					Yes			
Not Reported	Iron and Steel Production					Yes			
Not Reported	Ferroalloy Production					Yes			
Not Reported	Aluminum Production					Yes			
Not Reported	Paper and Pulp					Yes			

Not Reported	Limestone Use					Yes				
Not Reported	Soda Ash Use					Yes				
Not Reported	Semi-Conductor Manufacturing					Yes				
FL Industrial Sources	Glass Production	-				Yes				
Not Reported	Chemical Manufacturing					Yes				
Product Use (Ozone Depleting Substances)	**Product Use (Ozone Depleting Substances)**									
FL Industrial Sources	All Refrigerants- except SF6	13,755				Yes				
Transportation Energy	**On-road**									
FL Emission Summary - Onroad	Motor Gasoline (E-10)	401,644			29,150	Yes	Consumption	MMBTU	6,125,147	
FL Emission Summary - Onroad	Diesel	101,372				Yes	Consumption	MMBTU	1,366,032	
Not Reported	Ethanol (E-85)					No	Consumption	MMBTU		
Not Reported	Biodiesel					No	Consumption	MMBTU		
Not Reported	Electricity Consumption					No	Consumption	MMBTU		
	Rail									
FL Emission Summary - Rail	Diesel	27,489				Yes	Consumption	MMBTU	370,427	
FL Emission Summary - Rail	Coal Consumption	-				Yes	Consumption	MMBTU	-	
FL Emission Summary - Rail	Electric									
	Marine									
FL Emission Summary -Com Marine	Gasoline					Yes	Consumption	MMBTU		
FL Emission Summary -Com Marine	Distillate Fuels	-				Yes	Consumption	MMBTU	-	
FL Emission Summary -Com Marine	Residual Fuels	-				Yes	Consumption	MMBTU	-	
	Air									
FL Emission Summary-Aircraft	All Fuels (Jet and Aviation Gasoline)	1,860				No	Consumption	MMBTU	26,085	
	Off-road Mobile									
FL Emission Summary-Nonroad	All Fuels (Diesel and Gasoline)	46,907				Yes	Consumption	MMBTU	651,759	
Waste Management	**Solid Waste Management**									
FL Waste	Scope 1: Actual emissions from Waste Facilities in Region. Scope 3: Forward Order Decay estimates for waste generated in region	283,751		9,404	9,958	Yes - ONLY Scope 3	MSW+CD Generated	Tonnes	29,281	
Not Reported	MSW incineration (non grid connected)					Yes	MSW+CD Processed	Tonnes	729,041	
	Sewage Treatment						MSW Sent for Incineration	Tonnes	-	
FL Waste water	Central WWTPs and Septic Systems	4,660				Yes	MSW incinerated in Bounda	Tonnes	-	
Agriculture	**Livestock**									
GHF_FL_Agriculture	Enteric Fermentation	107,337				Yes				
GHF_FL_Agriculture	Manure management	21,478				Yes				
GHF_FL_Agriculture	**Crop Production and Soil Management**									
GHF_FL_Agriculture	Use of Fertilizer	8,082				Yes				
Not Reported	Crop Residue Incineration					No				
Land Use and Forestry										
GHG_FL_Forest	Urban Forest Annual Reserve	6,456				No				
GHG_FL_Forest	Forest Carbon Reserve (TOTAL)	18,521,295				No				

Grand Totals	Gross Totals	1,028,832	97,845	9,404	87,438	**1,136,082**
	Total with Aircraft	1,030,693	97,845	9,404	87,438	**1,137,942**
	Net Totals					

Note: Red text represents text added to original template to provide additional information or clarificatior

REDC GHG Emissions Roll Up Report
Year: 2010
(all emissions in Column D, when summed will equal the total County or REDC protocol compliant GHG emissions estimate)

REDC / County Name	Genesee County

Color Code

REQUIRED for the Roll Up Report, though some data may be zero, N/A, or considered to small to count

Report NO Data in cell

DRAFT Roll Up Report CGC. Emissions in MTCDE								
		CO2e	CO2	CH4	N2O	PFC	HFC	SF6
Built Environment	**Residential Energy Consumption**							
	Electricity / Steam	38,926	38,737	26	163			
	Natural Gas	100,316	100,218	40	59			
	Propane / LPG	18,666	18,593	19	55			
	Distillate Fuel Oil (#1, #2, Kerosene)	21,679	21,607	18	54			
	Wood	811	-	276	535			
	Commercial Energy Consumption							
	Electricity / Steam	21,105	21,002	14	89			
	Natural Gas	60,681	60,622	24	35			
	Propane / LPG	5,473	5,451	5	16			
	Distillate Fuel Oil (#1, #2, Kerosene)	15,613	15,561	13	39			
	Residual Fuel Oil (#4 and #6)	-						
	Coal	97	96	0	0			
	Wood	206	-	70	136			
	Industrial Energy Consumption							
	Electricity / Steam	32,433	32,275	22	136			
	Natural Gas	40,225	40,185	16	23			
	Propane / LPG	-	-	-	-			
	Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-			
	Residual Fuel Oil (#4 and #6)	-	-	-	-			
	Coal	-	-	-	-			
	Wood	-		-	-			
	Energy Generation and Supply							
	Electricity T/D Losses	5,381	5,355	4	23			
	Natural Gas T/D Losses	31,103		31,103				
	Use of SF6 in the Utility Industry	1,238						1,238
	Industrial Processes							
	Cement Production							
	Glass Production							
	Iron and Steel Production							
	Ferroalloy Production							
	Aluminum Production							
	Paper and Pulp							
	Limestone Use							
	Soda Ash Use							
	Semi-Conductor Manufacturing							
	Product Use (ODS Substitutes)							
	All Refrigerants- except utility SF6	13,755					13,755	
Transportation Energy	**On-road ALL (Total reflects subtraction of ethanol)**							
	Motor Gasoline (E-10)	401,644	400,224	1,060	359			
	Diesel	101,372	101,032	254	86			
	Ethanol							
	Biodiesel							
	Rail							
	Diesel	27,489	27,397	69	23			
	Coal							
	Marine							
	Gasoline							
	Distillate	-	-	-	-			
	Residual Fuel Oil	-	-	-	-			
	Off-road Mobile							
	All Fuels (Diesel and Gasoline)	46,907	46,746	120	41			
Waste Management	**Solid Waste Management**							
	Landfill Methane from FOD of waste generated	9,404	-	9,404	-			
	MSW incineration (non grid connected)							
	Sewage Treatment							
	Central WWTPs and Septic Systems (Total reflects rounding)	4,660		3,107	1,553			
Agriculture	**Livestock**							
	Enteric Fementation	107,337		107,337				
	Manure management	21,478		17,777	3,701			
	Crop Production and Soil Management							
	Use of Fertilizer	8,082			8,082			
	Crop Residue Incineration							
Grand Totals		1,136,082	935,101	170,779	15,209	-	13,755	1,238

Note: Red text represents text added to original template to provide additional information or clarification

REDC Emissions By Source and Sector
Year: 2010

REDC / County Name	Livingston

Color Code

	REQUIRED, though some data may be zero or considered to small to count
	OPTIONAL
	DO NOT Report Data in these cells

DRAFT Reporting Template CGC. Emissions in MTCDE							Related GHG Metrics / Activity Data		
		Scope 1	Scope 2	Scope 3	Biogenic	Rolled Up?	Metric	Unit	Value
Built Environment	**Residential Energy Consumption**								
FL Electricity Consumption	Electricity / Steam		50,404			Yes	Consumption	MMBTU	757,749
FL Direct Residental Fuel Consumption	Natural Gas	86,966				Yes	Consumption	MMBTU	1,638,642
FL Direct Residental Fuel Consumption	Propane / LPG	24,173				Yes	Consumption	MMBTU	382,302
FL Direct Residental Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	17,794				Yes	Consumption	MMBTU	239,781
FL Direct Residental Fuel Consumption	Wood	1,530			72,693	Yes	Consumption	MMBTU	774,980
	Commercial Energy Consumption								
FL Electricity Consumption	Electricity / Steam		31,100			Yes	Consumption	MMBTU	467,546
FL Commercial Direct Fuel Consumption	Natural Gas	43,812				Yes	Consumption	MMBTU	825,521
FL Commercial Direct Fuel Consumption	Propane / LPG	5,902				Yes	Consumption	MMBTU	93,350
FL Commercial Direct Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	10,673				Yes	Consumption	MMBTU	143,821
FL Commercial Direct Fuel Consumption	Residual Fuel Oil (#4 and #6)	-				Yes	Consumption	MMBTU	-
FL Commercial Direct Fuel Consumption	Coal	112				Yes	Consumption	MMBTU	1,090
FL Commercial Direct Fuel Consumption	Wood	325			15,422	Yes	Consumption	MMBTU	164,413
	Industrial Energy Consumption								
FL Electricity Consumption	Electricity / Steam		33,180			Yes	Consumption	MMBTU	498,811
FL Industrial Title V Consumption	Natural Gas	9,146				Yes	Consumption	MMBTU	172,326
FL Industrial Title V Consumption	Propane / LPG	40				Yes	Consumption	MMBTU	634
FL Industrial Title V Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Residual Fuel Oil (#4 and #6)	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Coal	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Wood	-			-	Yes	Consumption	MMBTU	-
Energy Generation and Supply	**Energy Generation and Supply**								
FL Elec Generation GHG Analysis	Coal	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Nuclear	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Natural Gas	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Distillate Fuel Oil (#1, #2 and #4)	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Residual Fuel Oil (#4 and #6)	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Wood / Biomass	-			-	No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	MSW and Landfill gas	-			-	No	MSW Combusted	MMBTU	-
FL Elec Generation GHG Analysis	Other Wind and Hydro	-							-
FL Electricity Consumption	Electricity T/D Losses		6,675			Yes	Losses	MMBTU	100,343
FL Elec Generation GHG Analysis and FL Direct Fuel Consumption	Natural Gas T/D Losses	19,700				Yes	Losses	MMBTU	
FL Electricity Consumption	Use of SF6 in the Utility Industry	1,535				Yes	Consumption	MMBTU	-
Industrial Processes	**Industrial Processes**								
Not Reported	Cement Production					Yes			
Not Reported	Iron and Steel Production					Yes			
Not Reported	Ferroalloy Production					Yes			
Not Reported	Aluminum Production					Yes			
Not Reported	Paper and Pulp					Yes			

Not Reported	Limestone Use					Yes				
Not Reported	Soda Ash Use					Yes				
Not Reported	Semi-Conductor Manufacturing					Yes				
FL Industrial Sources	Glass Production	-				Yes				
Not Reported	Chemical Manufacturing					Yes				
Product Use (Ozone Depleting Substances)	**Product Use (Ozone Depleting Substances)**									
FL Industrial Sources	All Refrigerants- except SF6	14,972				Yes				
Transportation Energy	**On-road**									
FL Emission Summary - Onroad	Motor Gasoline (E-10)	289,011			20,976	Yes	Consumption	MMBTU	4,407,479	
FL Emission Summary - Onroad	Diesel	77,407				Yes	Consumption	MMBTU	1,043,088	
Not Reported	Ethanol (E-85)					No	Consumption	MMBTU		
Not Reported	Biodiesel					No	Consumption	MMBTU		
Not Reported	Electricity Consumption					No	Consumption	MMBTU		
	Rail									
FL Emission Summary - Rail	Diesel	2,698				Yes	Consumption	MMBTU	36,354	
FL Emission Summary - Rail	Coal Consumption	-				Yes	Consumption	MMBTU	-	
FL Emission Summary - Rail	Electric									
	Marine									
FL Emission Summary -Com Marine	Gasoline					Yes	Consumption	MMBTU		
FL Emission Summary -Com Marine	Distillate Fuels	-				Yes	Consumption	MMBTU	-	
FL Emission Summary -Com Marine	Residual Fuels	-				Yes	Consumption	MMBTU	-	
	Air									
FL Emission Summary-Aircraft	All Fuels (Jet and Aviation Gasoline)	1,252				No	Consumption	MMBTU	17,523	
	Off-road Mobile									
FL Emission Summary-Nonroad	All Fuels (Diesel and Gasoline)	45,099				Yes	Consumption	MMBTU	624,813	
Waste Management	**Solid Waste Management**									
FL Waste	Scope 1: Actual emissions from Waste Facilities in Region. Scope 3: Forward Order Decay estimates for waste generated in region	0		11,704	10,839	Yes - ONLY Scope 3	MSW+CD Generated	Tonnes	36,442	
Not Reported	MSW incineration (non grid connected)					Yes	MSW+CD Processed	Tonnes	-	
	Sewage Treatment						MSW Sent for Incineration	Tonnes	-	
FL Waste water	Central WWTPs and Septic Systems	3,400				Yes	MSW incinerated in Bounda	Tonnes	-	
Agriculture	**Livestock**									
GHF_FL_Agriculture	Enteric Fermentation	105,152				Yes				
GHF_FL_Agriculture	Manure management	21,311				Yes				
GHF_FL_Agriculture	**Crop Production and Soil Management**									
GHF_FL_Agriculture	Use of Fertilizer	8,966				Yes				
Not Reported	Crop Residue Incineration					No				
Land Use and Forestry										
GHG_FL_Forest	Urban Forest Annual Reserve	9,040				No				
GHG_FL_Forest	Forest Carbon Reserve (TOTAL)	22,179,890				No				

Grand Totals	Gross Totals	789,724	121,359	11,704	119,930	**922,787**
	Total with Aircraft	790,976	121,359	11,704	119,930	**924,039**
	Net Totals					

Note: Red text represents text added to original template to provide additional information or clarificatior

REDC GHG Emissions Roll Up Report
Year: 2010
(all emissions in Column D, when summed will equal the total County or REDC protocol compliant GHG emissions estimate)

REDC / County Name	Livingston County

Color Code

REQUIRED for the Roll Up Report, though some data may be zero, N/A, or considered to small to count

Report NO Data in cell

DRAFT Roll Up Report CGC. Emissions in MTCDE

		CO2e	CO2	CH4	N2O	PFC	HFC	SF6
Built Environment	**Residential Energy Consumption**							
	Electricity / Steam	50,404	50,159	34	211			
	Natural Gas	86,966	86,881	34	51			
	Propane / LPG	24,173	24,077	24	71			
	Distillate Fuel Oil (#1, #2, Kerosene)	17,794	17,734	15	45			
	Wood	1,530	-	521	1,009			
	Commercial Energy Consumption							
	Electricity / Steam	31,100	30,949	21	130			
	Natural Gas	43,812	43,769	17	26			
	Propane / LPG	5,902	5,879	6	17			
	Distillate Fuel Oil (#1, #2, Kerosene)	10,673	10,637	9	27			
	Residual Fuel Oil (#4 and #6)	-						
	Coal	112	111	0	1			
	Wood	325	-	110	214			
	Industrial Energy Consumption							
	Electricity / Steam	33,180	33,019	22	139			
	Natural Gas	9,146	9,137	4	5			
	Propane / LPG	40	40	0	0			
	Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-			
	Residual Fuel Oil (#4 and #6)	-	-	-	-			
	Coal	-	-	-	-			
	Wood	-		-	-			
	Energy Generation and Supply							
	Electricity T/D Losses	6,675	6,642	4	28			
	Natural Gas T/D Losses	19,700		19,700				
	Use of SF6 in the Utility Industry	1,535						1,535
	Industrial Processes							
	Cement Production							
	Glass Production							
	Iron and Steel Production							
	Ferroalloy Production							
	Aluminum Production							
	Paper and Pulp							
	Limestone Use							
	Soda Ash Use							
	Semi-Conductor Manufacturing							
	Product Use (ODS Substitutes)							
	All Refrigerants- except utility SF6	14,972					14,972	
Transportation Energy	**On-road ALL (Total reflects subtraction of ethanol)**							
	Motor Gasoline (E-10)	289,011	287,990	763	258			
	Diesel	77,407	77,147	194	66			
	Ethanol							
	Biodiesel							
	Rail							
	Diesel	2,698	2,689	7	2			
	Coal							
	Marine							
	Gasoline							
	Distillate	-	-	-	-			
	Residual Fuel Oil	-	-	-	-			
	Off-road Mobile							
	All Fuels (Diesel and Gasoline)	45,099	44,944	116	39			
Waste Management	**Solid Waste Management**							
	Landfill Methane from FOD of waste generated	11,704	-	11,704	-			
	MSW incineration (non grid connected)							
	Sewage Treatment							
	Central WWTPs and Septic Systems (Total reflects rounding)	3,400		2,267	1,133			
Agriculture	**Livestock**							
	Enteric Fementation	105,152		105,152				
	Manure management	21,311		17,637	3,674			
	Crop Production and Soil Management							
	Use of Fertilizer	8,966			8,966			
	Crop Residue Incineration							
Grand Totals		922,787	731,804	158,362	16,113	-	14,972	1,535

Note: Red text represents text added to original template to provide additional information or clarification

REDC Emissions By Source and Sector
Year: 2010

REDC / County Name	Monroe

Color Code

	REQUIRED, though some data may be zero or considered to small to count
	OPTIONAL
	DO NOT Report Data in these cells

DRAFT Reporting Template CGC. Emissions in MTCDE							Related GHG Metrics / Activity Data		
		Scope 1	Scope 2	Scope 3	Biogenic	Rolled Up?	Metric	Unit	Value
Built Environment	**Residential Energy Consumption**								
FL Electricity Consumption	Electricity / Steam		583,141			Yes	Consumption	MMBTU	8,766,622
FL Direct Residental Fuel Consumption	Natural Gas	1,767,355				Yes	Consumption	MMBTU	33,301,091
FL Direct Residental Fuel Consumption	Propane / LPG	32,214				Yes	Consumption	MMBTU	509,489
FL Direct Residental Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	60,502				Yes	Consumption	MMBTU	815,296
FL Direct Residental Fuel Consumption	Wood	1,345			63,906	Yes	Consumption	MMBTU	681,303
	Commercial Energy Consumption								
FL Electricity Consumption	Electricity / Steam		630,471			Yes	Consumption	MMBTU	9,478,160
FL Commercial Direct Fuel Consumption	Natural Gas	1,231,571				Yes	Consumption	MMBTU	23,205,657
FL Commercial Direct Fuel Consumption	Propane / LPG	10,881				Yes	Consumption	MMBTU	172,082
FL Commercial Direct Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	50,196				Yes	Consumption	MMBTU	676,416
FL Commercial Direct Fuel Consumption	Residual Fuel Oil (#4 and #6)	-				Yes	Consumption	MMBTU	-
FL Commercial Direct Fuel Consumption	Coal	77				Yes	Consumption	MMBTU	747
FL Commercial Direct Fuel Consumption	Wood	395			18,753	Yes	Consumption	MMBTU	199,930
	Industrial Energy Consumption								
FL Electricity Consumption	Electricity / Steam		305,578			Yes	Consumption	MMBTU	4,593,902
FL Industrial Title V Consumption	Natural Gas	84,189				Yes	Consumption	MMBTU	1,586,308
FL Industrial Title V Consumption	Propane / LPG	5				Yes	Consumption	MMBTU	85
FL Industrial Title V Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	926				Yes	Consumption	MMBTU	12,484
FL Industrial Title V Consumption	Residual Fuel Oil (#4 and #6)	11,903				Yes	Consumption	MMBTU	157,965
FL Industrial Title V Consumption	Coal	93,268				Yes	Consumption	MMBTU	990,874
FL Industrial Title V Consumption	Wood	-			-	Yes	Consumption	MMBTU	-
Energy Generation and Supply	**Energy Generation and Supply**								
FL Elec Generation GHG Analysis	Coal	960,843				No	Generation	MMBTU	9,829,896
FL Elec Generation GHG Analysis	Nuclear	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Natural Gas	52,696				No	Generation	MMBTU	992,917
FL Elec Generation GHG Analysis	Distillate Fuel Oil (#1, #2 and #4)	1,627				No	Generation	MMBTU	21,918
FL Elec Generation GHG Analysis	Residual Fuel Oil (#4 and #6)	9,417				No	Generation	MMBTU	124,973
FL Elec Generation GHG Analysis	Wood / Biomass	-			-	No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	MSW and Landfill gas	285			56,563	No	MSW Combusted	MMBTU	1,086,281
FL Elec Generation GHG Analysis	Other Wind and Hydro	-							339,986
FL Electricity Consumption	Electricity T/D Losses		88,417			Yes	Losses	MMBTU	1,329,211
FL Elec Generation GHG Analysis and FL Direct Fuel Consumption	Natural Gas T/D Losses	435,860				Yes	Losses	MMBTU	
FL Electricity Consumption	Use of SF6 in the Utility Industry	20,336				Yes	Consumption	MMBTU	-
Industrial Processes	**Industrial Processes**								
Not Reported	Cement Production					Yes			
Not Reported	Iron and Steel Production					Yes			
Not Reported	Ferroalloy Production					Yes			
Not Reported	Aluminum Production					Yes			
Not Reported	Paper and Pulp					Yes			
Not Reported	Limestone Use					Yes			
Not Reported	Soda Ash Use					Yes			
Not Reported	Semi-Conductor Manufacturing					Yes			
FL Industrial Sources	Glass Production	-				Yes			
Not Reported	Chemical Manufacturing					Yes			
Product Use (Ozone Depleting Substances)	**Product Use (Ozone Depleting Substances)**								
FL Industrial Sources	All Refrigerants- except SF6	170,421				Yes			
Transportation Energy	**On-road**								
FL Emission Summary - Onroad	Motor Gasoline (E-10)	2,319,392			168,335	Yes	Consumption	MMBTU	35,371,200
FL Emission Summary - Onroad	Diesel	354,771				Yes	Consumption	MMBTU	4,780,696
Not Reported	Ethanol (E-85)					No	Consumption	MMBTU	
Not Reported	Biodiesel					No	Consumption	MMBTU	
Not Reported	Electricity Consumption					No	Consumption	MMBTU	
	Rail								
FL Emission Summary - Rail	Diesel	38,049				Yes	Consumption	MMBTU	512,727
FL Emission Summary - Rail	Coal Consumption	-				Yes	Consumption	MMBTU	-
FL Emission Summary - Rail	Electric								
	Marine								
FL Emission Summary -Com Marine	Gasoline					Yes	Consumption	MMBTU	
FL Emission Summary -Com Marine	Distillate Fuels	-				Yes	Consumption	MMBTU	-
FL Emission Summary -Com Marine	Residual Fuels	9,247				Yes	Consumption	MMBTU	122,719
	Air								
FL Emission Summary-Aircraft	All Fuels (Jet and Aviation Gasoline)	41,295				No	Consumption	MMBTU	578,610
	Off-road Mobile								
FL Emission Summary-Nonroad	All Fuels (Diesel and Gasoline)	361,546				Yes	Consumption	MMBTU	5,108,287
Waste Management	**Solid Waste Management**								
FL Waste	Scope 1: Actual emissions from Waste Facilities in Region. Scope 3: Forward Order Decay estimates for waste generated in region	0		208,035	123,375	Yes - ONLY Scope 3	MSW+CD Generated	Tonnes	647,758
Not Reported	MSW incineration (non grid connected)					Yes	MSW+CD Processed	Tonnes	-
	Sewage Treatment						MSW Sent for Incineration	Tonnes	-
FL Waste water	Central WWTPs and Septic Systems	86,175				Yes	MSW incinerated in Boundar	Tonnes	-
Agriculture	**Livestock**								
GHF_FL_Agriculture	Enteric Fermentation	14,562				Yes			
GHF_FL_Agriculture	Manure management	2,150				Yes			
GHF_FL_Agriculture	**Crop Production and Soil Management**								
GHF_FL_Agriculture	Use of Fertilizer	5,697				Yes			
Not Reported	Crop Residue Incineration					No			
Land Use and Forestry									
GHG_FL_Forest	Urban Forest Annual Reserve	184,750				No			
GHG_FL_Forest	Forest Carbon Reserve (TOTAL)	19,500,731				No			

Grand Totals	Gross Totals	7,163,032	1,607,606	208,035	430,933	**8,978,673**
	Total with Aircraft	7,204,327	1,607,606	208,035	430,933	**9,019,969**
	Net Totals					

Note: Red text represents text added to original template to provide additional information or clarification

REDC GHG Emissions Roll Up Report
Year: 2010
(all emissions in Column D, when summed will equal the total County or REDC protocol compliant GHG emissions estimate)

REDC / County Name	Monroe County

Color Code

REQUIRED for the Roll Up Report, though some data may be zero, N/A, or considered to small to count

Report NO Data in cell

DRAFT Roll Up Report CGC. Emissions in MTCDE

		CO2e	CO2	CH4	N2O	PFC	HFC	SF6
Built Environment	**Residential Energy Consumption**							
	Electricity / Steam	583,141	580,304	390	2,446			
	Natural Gas	1,767,355	1,765,624	699	1,032			
	Propane / LPG	32,214	32,088	32	95			
	Distillate Fuel Oil (#1, #2, Kerosene)	60,502	60,299	51	152			
	Wood	1,345	-	458	887			
	Commercial Energy Consumption							
	Electricity / Steam	630,471	627,404	422	2,644			
	Natural Gas	1,231,571	1,230,364	487	719			
	Propane / LPG	10,881	10,838	11	32			
	Distillate Fuel Oil (#1, #2, Kerosene)	50,196	50,028	43	126			
	Residual Fuel Oil (#4 and #6)	-						
	Coal	77	76	0	0			
	Wood	395	-	134	260			
	Industrial Energy Consumption							
	Electricity / Steam	305,578	304,092	204	1,282			
	Natural Gas	84,189	84,106	33	49			
	Propane / LPG	5	5	0	0			
	Distillate Fuel Oil (#1, #2, Kerosene)	926	923	1	2			
	Residual Fuel Oil (#4 and #6)	11,903	11,863	10	29			
	Coal	93,268	92,548	229	491			
	Wood	-		-	-			
	Energy Generation and Supply							
	Electricity T/D Losses	88,417	87,987	59	371			
	Natural Gas T/D Losses	435,860		435,860				
	Use of SF6 in the Utility Industry	20,336						20,336
	Industrial Processes							
	Cement Production							
	Glass Production							
	Iron and Steel Production							
	Ferroalloy Production							
	Aluminum Production							
	Paper and Pulp							
	Limestone Use							
	Soda Ash Use							
	Semi-Conductor Manufacturing							
	Product Use (ODS Substitutes)							
	All Refrigerants- except utility SF6	170,421					170,421	
Transportation Energy	**On-road ALL (Total reflects subtraction of ethanol)**							
	Motor Gasoline (E-10)	2,319,392	2,311,196	6,122	2,074			
	Diesel	354,771	353,580	889	301			
	Ethanol							
	Biodiesel							
	Rail							
	Diesel	38,049	37,921	95	32			
	Coal							
	Marine							
	Gasoline							
	Distillate	-	-	-	-			
	Residual Fuel Oil	9,247	9,216	23	8			
	Off-road Mobile							
	All Fuels (Diesel and Gasoline)	361,546	360,290	938	319			
Waste Management	**Solid Waste Management**							
	Landfill Methane from FOD of waste generated	208,035	-	208,035	-			
	MSW incineration (non grid connected)							
	Sewage Treatment							
	Central WWTPs and Septic Systems (Total reflects rounding)	86,175		57,450	28,725			
Agriculture	**Livestock**							
	Enteric Fementation	14,562		14,562				
	Manure management	2,150		1,816	334			
	Crop Production and Soil Management							
	Use of Fertilizer	5,697			5,697			
	Crop Residue Incineration							
Grand Totals		8,978,673	8,010,753	729,055	48,109	-	170,421	20,336

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REDC Emissions By Source and Sector
Year: 2010

REDC / County Name	Ontario

Color Code

	REQUIRED, though some data may be zero or considered to small to count
	OPTIONAL
	DO NOT Report Data in these cells

DRAFT Reporting Template CGC. Emissions in MTCDE						Rolled Up?	Related GHG Metrics / Activity Data		
		Scope 1	Scope 2	Scope 3	Biogenic		Metric	Unit	Value
Built Environment	**Residential Energy Consumption**								
FL Electricity Consumption	Electricity / Steam		100,919			Yes	Consumption	MMBTU	1,517,168
FL Direct Residental Fuel Consumption	Natural Gas	187,569				Yes	Consumption	MMBTU	3,534,230
FL Direct Residental Fuel Consumption	Propane / LPG	32,884				Yes	Consumption	MMBTU	520,078
FL Direct Residental Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	29,308				Yes	Consumption	MMBTU	394,945
FL Direct Residental Fuel Consumption	Wood	1,428			67,876	Yes	Consumption	MMBTU	723,622
	Commercial Energy Consumption								
FL Electricity Consumption	Electricity / Steam		109,174			Yes	Consumption	MMBTU	1,641,268
FL Commercial Direct Fuel Consumption	Natural Gas	131,266				Yes	Consumption	MMBTU	2,473,364
FL Commercial Direct Fuel Consumption	Propane / LPG	11,154				Yes	Consumption	MMBTU	176,412
FL Commercial Direct Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	24,420				Yes	Consumption	MMBTU	329,073
FL Commercial Direct Fuel Consumption	Residual Fuel Oil (#4 and #6)	-				Yes	Consumption	MMBTU	-
FL Commercial Direct Fuel Consumption	Coal	283				Yes	Consumption	MMBTU	2,755
FL Commercial Direct Fuel Consumption	Wood	421			20,004	Yes	Consumption	MMBTU	213,260
	Industrial Energy Consumption								
FL Electricity Consumption	Electricity / Steam		63,660			Yes	Consumption	MMBTU	957,024
FL Industrial Title V Consumption	Natural Gas	120,837				Yes	Consumption	MMBTU	2,276,846
FL Industrial Title V Consumption	Propane / LPG	110				Yes	Consumption	MMBTU	1,741
FL Industrial Title V Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Residual Fuel Oil (#4 and #6)	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Coal	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Wood	-			-	Yes	Consumption	MMBTU	-
Energy Generation and Supply	**Energy Generation and Supply**								
FL Elec Generation GHG Analysis	Coal	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Nuclear	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Natural Gas	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Distillate Fuel Oil (#1, #2 and #4)	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Residual Fuel Oil (#4 and #6)	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Wood / Biomass	-			-	No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	MSW and Landfill gas	146			28,867	No	MSW Combusted	MMBTU	554,396
FL Elec Generation GHG Analysis	Other Wind and Hydro	-							-
FL Electricity Consumption	Electricity T/D Losses		15,932			Yes	Losses	MMBTU	239,520
FL Elec Generation GHG Analysis and FL Direct Fuel Consumption	Natural Gas T/D Losses	61,902				Yes	Losses	MMBTU	
FL Electricity Consumption	Use of SF6 in the Utility Industry	3,664				Yes	Consumption	MMBTU	-
Industrial Processes	**Industrial Processes**								
Not Reported	Cement Production					Yes			
Not Reported	Iron and Steel Production					Yes			
Not Reported	Ferroalloy Production					Yes			
Not Reported	Aluminum Production					Yes			
Not Reported	Paper and Pulp					Yes			

Not Reported	Limestone Use					Yes				
Not Reported	Soda Ash Use					Yes				
Not Reported	Semi-Conductor Manufacturing					Yes				
FL Industrial Sources	Glass Production	37,292				Yes				
Not Reported	Chemical Manufacturing					Yes				
Product Use (Ozone Depleting Substances)	**Product Use (Ozone Depleting Substances)**									
FL Industrial Sources	All Refrigerants- except SF6	24,711				Yes				
Transportation Energy	**On-road**									
FL Emission Summary - Onroad	Motor Gasoline (E-10)	516,572			37,491	Yes	Consumption	MMBTU	7,877,822	
FL Emission Summary - Onroad	Diesel	106,684				Yes	Consumption	MMBTU	1,438,072	
Not Reported	Ethanol (E-85)					No	Consumption	MMBTU		
Not Reported	Biodiesel					No	Consumption	MMBTU		
Not Reported	Electricity Consumption					No	Consumption	MMBTU		
	Rail									
FL Emission Summary - Rail	Diesel	1,036				Yes	Consumption	MMBTU	13,962	
FL Emission Summary - Rail	Coal Consumption	-				Yes	Consumption	MMBTU	-	
FL Emission Summary - Rail	Electric									
	Marine									
FL Emission Summary -Com Marine	Gasoline					Yes	Consumption	MMBTU		
FL Emission Summary -Com Marine	Distillate Fuels	-				Yes	Consumption	MMBTU	-	
FL Emission Summary -Com Marine	Residual Fuels	-				Yes	Consumption	MMBTU	-	
	Air									
FL Emission Summary-Aircraft	All Fuels (Jet and Aviation Gasoline)	459				No	Consumption	MMBTU	6,450	
	Off-road Mobile									
FL Emission Summary-Nonroad	All Fuels (Diesel and Gasoline)	79,324				Yes	Consumption	MMBTU	1,105,904	
Waste Management	**Solid Waste Management**									
FL Waste	Scope 1: Actual emissions from Waste Facilities in Region. Scope 3: Forward Order Decay estimates for waste generated in region	0		37,122	17,890	Yes - ONLY Scope 3	MSW+CD Generated	Tonnes	115,586	
Not Reported	MSW incineration (non grid connected)					Yes	MSW+CD Processed	Tonnes	-	
	Sewage Treatment						MSW Sent for Incineration	Tonnes	-	
FL Waste water	Central WWTPs and Septic Systems	8,123				Yes	MSW incinerated in Bounda	Tonnes	-	
Agriculture	**Livestock**									
GHF_FL_Agriculture	Enteric Fermentation	97,147				Yes				
GHF_FL_Agriculture	Manure management	19,073				Yes				
GHF_FL_Agriculture	**Crop Production and Soil Management**									
GHF_FL_Agriculture	Use of Fertilizer	8,421				Yes				
Not Reported	Crop Residue Incineration					No				
Land Use and Forestry										
GHG_FL_Forest	Urban Forest Annual Reserve	10,361				No				
GHG_FL_Forest	Forest Carbon Reserve (TOTAL)	29,726,656				No				

Grand Totals	Gross Totals	1,503,632	289,686	37,122	172,128	**1,830,439**
	Total with Aircraft	1,504,090	289,686	37,122	172,128	**1,830,898**
	Net Totals					

Note: Red text represents text added to original template to provide additional information or clarificatior

REDC GHG Emissions Roll Up Report
Year: 2010
(all emissions in Column D, when summed will equal the total County or REDC protocol compliant GHG emissions estimate)

REDC / County Name	Ontario County

Color Code

REQUIRED for the Roll Up Report, though some data may be zero, N/A, or considered to small to count

Report NO Data in cell

DRAFT Roll Up Report CGC. Emissions in MTCDE								
		CO2e	CO2	CH4	N2O	PFC	HFC	SF6
Built Environment	**Residential Energy Consumption**							
	Electricity / Steam	100,919	100,429	68	423			
	Natural Gas	187,569	187,385	74	110			
	Propane / LPG	32,884	32,755	33	97			
	Distillate Fuel Oil (#1, #2, Kerosene)	29,308	29,210	25	73			
	Wood	1,428	-	486	942			
	Commercial Energy Consumption							
	Electricity / Steam	109,174	108,643	73	458			
	Natural Gas	131,266	131,138	52	77			
	Propane / LPG	11,154	11,110	11	33			
	Distillate Fuel Oil (#1, #2, Kerosene)	24,420	24,338	21	61			
	Residual Fuel Oil (#4 and #6)	-						
	Coal	283	281	1	1			
	Wood	421	-	143	278			
	Industrial Energy Consumption							
	Electricity / Steam	63,660	63,350	43	267			
	Natural Gas	120,837	120,718	48	71			
	Propane / LPG	110	110	0	0			
	Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-			
	Residual Fuel Oil (#4 and #6)	-	-	-	-			
	Coal	-	-	-	-			
	Wood	-		-	-			
	Energy Generation and Supply							
	Electricity T/D Losses	15,932	15,855	11	67			
	Natural Gas T/D Losses	61,902		61,902				
	Use of SF6 in the Utility Industry	3,664						3,664
	Industrial Processes							
	Cement Production							
	Glass Production	37,292						
	Iron and Steel Production							
	Ferroalloy Production							
	Aluminum Production							
	Paper and Pulp							
	Limestone Use							
	Soda Ash Use							
	Semi-Conductor Manufacturing							
	Product Use (ODS Substitutes)							
	All Refrigerants- except utility SF6	24,711					24,711	
Transportation Energy	**On-road ALL (Total reflects subtraction of ethanol)**							
	Motor Gasoline (E-10)	516,572	514,746	1,363	462			
	Diesel	106,684	106,360	234	91			
	Ethanol							
	Biodiesel							
	Rail							
	Diesel	1,036	1,033	3	1			
	Coal							
	Marine							
	Gasoline							
	Distillate	-	-	-	-			
	Residual Fuel Oil	-	-	-	-			
	Off-road Mobile							
	All Fuels (Diesel and Gasoline)	79,324	79,050	204	69			
Waste Management	**Solid Waste Management**							
	Landfill Methane from FOD of waste generated	37,122	-	37,122	-			
	MSW incineration (non grid connected)							
	Sewage Treatment							
	Central WWTPs and Septic Systems (Total reflects rounding)	8,123		5,415	2,708			
Agriculture	**Livestock**							
	Enteric Fementation	97,147		97,147				
	Manure management	19,073		15,804	3,269			
	Crop Production and Soil Management							
	Use of Fertilizer	8,421			8,421			
	Crop Residue Incineration							
Grand Totals		1,830,439	1,526,511	220,283	17,978	-	24,711	3,664

Note: Red text represents text added to original template to provide additional information or clarification

REDC Emissions By Source and Sector
Year: 2010

REDC / County Name	Orleans

Color Code

	REQUIRED, though some data may be zero or considered to small to count
	OPTIONAL
	DO NOT Report Data in these cells

DRAFT Reporting Template CGC. Emissions in MTCDE							Related GHG Metrics / Activity Data		
		Scope 1	Scope 2	Scope 3	Biogenic	Rolled Up?	Metric	Unit	Value
Built Environment	**Residential Energy Consumption**								
FL Electricity Consumption	Electricity / Steam		29,567			Yes	Consumption	MMBTU	444,492
FL Direct Residental Fuel Consumption	Natural Gas	49,121				Yes	Consumption	MMBTU	925,549
FL Direct Residental Fuel Consumption	Propane / LPG	19,791				Yes	Consumption	MMBTU	313,012
FL Direct Residental Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	19,487				Yes	Consumption	MMBTU	262,595
FL Direct Residental Fuel Consumption	Wood	1,037			49,257	Yes	Consumption	MMBTU	525,124
	Commercial Energy Consumption								
FL Electricity Consumption	Electricity / Steam		9,501			Yes	Consumption	MMBTU	142,835
FL Commercial Direct Fuel Consumption	Natural Gas	17,789				Yes	Consumption	MMBTU	335,187
FL Commercial Direct Fuel Consumption	Propane / LPG	3,474				Yes	Consumption	MMBTU	54,943
FL Commercial Direct Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	8,402				Yes	Consumption	MMBTU	113,224
FL Commercial Direct Fuel Consumption	Residual Fuel Oil (#4 and #6)	-				Yes	Consumption	MMBTU	-
FL Commercial Direct Fuel Consumption	Coal	23				Yes	Consumption	MMBTU	227
FL Commercial Direct Fuel Consumption	Wood	158			7,512	Yes	Consumption	MMBTU	80,085
	Industrial Energy Consumption								
FL Electricity Consumption	Electricity / Steam		20,395			Yes	Consumption	MMBTU	306,603
FL Industrial Title V Consumption	Natural Gas	8,011				Yes	Consumption	MMBTU	150,951
FL Industrial Title V Consumption	Propane / LPG	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Residual Fuel Oil (#4 and #6)	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Coal	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Wood	-			-	Yes	Consumption	MMBTU	-
Energy Generation and Supply	**Energy Generation and Supply**								
FL Elec Generation GHG Analysis	Coal	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Nuclear	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Natural Gas	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Distillate Fuel Oil (#1, #2 and #4)	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Residual Fuel Oil (#4 and #6)	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Wood / Biomass	-			-	No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	MSW and Landfill gas	-			-	No	MSW Combusted	MMBTU	-
FL Elec Generation GHG Analysis	Other Wind and Hydro	-							202,204
FL Electricity Consumption	Electricity T/D Losses		3,461			Yes	Losses	MMBTU	52,027
FL Elec Generation GHG Analysis and FL Direct Fuel Consumption	Natural Gas T/D Losses	10,548				Yes	Losses	MMBTU	
FL Electricity Consumption	Use of SF6 in the Utility Industry	796				Yes	Consumption	MMBTU	-
Industrial Processes	**Industrial Processes**								
Not Reported	Cement Production					Yes			
Not Reported	Iron and Steel Production					Yes			
Not Reported	Ferroalloy Production					Yes			
Not Reported	Aluminum Production					Yes			
Not Reported	Paper and Pulp					Yes			

Not Reported	Limestone Use					Yes				
Not Reported	Soda Ash Use					Yes				
Not Reported	Semi-Conductor Manufacturing					Yes				
FL Industrial Sources	Glass Production	-				Yes				
Not Reported	Chemical Manufacturing					Yes				
Product Use (Ozone Depleting Substances)	**Product Use (Ozone Depleting Substances)**									
FL Industrial Sources	All Refrigerants- except SF6	9,818				Yes				
Transportation Energy	**On-road**									
FL Emission Summary - Onroad	Motor Gasoline (E-10)	108,783			7,895	Yes	Consumption	MMBTU	1,658,969	
FL Emission Summary - Onroad	Diesel	22,121				Yes	Consumption	MMBTU	298,095	
Not Reported	Ethanol (E-85)					No	Consumption	MMBTU		
Not Reported	Biodiesel					No	Consumption	MMBTU		
Not Reported	Electricity Consumption					No	Consumption	MMBTU		
	Rail									
FL Emission Summary - Rail	Diesel	184				Yes	Consumption	MMBTU	2,479	
FL Emission Summary - Rail	Coal Consumption	-				Yes	Consumption	MMBTU	-	
FL Emission Summary - Rail	Electric									
	Marine									
FL Emission Summary -Com Marine	Gasoline					Yes	Consumption	MMBTU		
FL Emission Summary -Com Marine	Distillate Fuels	-				Yes	Consumption	MMBTU	-	
FL Emission Summary -Com Marine	Residual Fuels	7,187				Yes	Consumption	MMBTU	95,382	
	Air									
FL Emission Summary-Aircraft	All Fuels (Jet and Aviation Gasoline)	138				No	Consumption	MMBTU	1,952	
	Off-road Mobile									
FL Emission Summary-Nonroad	All Fuels (Diesel and Gasoline)	36,869				Yes	Consumption	MMBTU	512,632	
Waste Management	**Solid Waste Management**									
FL Waste	Scope 1: Actual emissions from Waste Facilities in Region. Scope 3: Forward Order Decay estimates for waste generated in region	134,789		6,935	7,108	Yes - ONLY Scope 3	MSW+CD Generated	Tonnes	21,593	
Not Reported	MSW incineration (non grid connected)					Yes	MSW+CD Processed	Tonnes	742,837	
	Sewage Treatment						MSW Sent for Incineration	Tonnes	-	
FL Waste water	Central WWTPs and Septic Systems	6,662				Yes	MSW incinerated in Bounda	Tonnes	-	
Agriculture	**Livestock**									
GHF_FL_Agriculture	Enteric Fermentation	17,831				Yes				
GHF_FL_Agriculture	Manure management	2,599				Yes				
GHF_FL_Agriculture	**Crop Production and Soil Management**									
GHF_FL_Agriculture	Use of Fertilizer	5,616				Yes				
Not Reported	Crop Residue Incineration					No				
Land Use and Forestry										
GHG_FL_Forest	Urban Forest Annual Reserve	7,679				No				
GHG_FL_Forest	Forest Carbon Reserve (TOTAL)	10,336,977				No				

Grand Totals	Gross Totals	356,309	62,923	6,935	71,772	**426,168**
	Total with Aircraft	356,448	62,923	6,935	71,772	**426,306**
	Net Totals					

Note: Red text represents text added to original template to provide additional information or clarificatior

REDC GHG Emissions Roll Up Report
Year: 2010
(all emissions in Column D, when summed will equal the total County or REDC protocol compliant GHG emissions estimate)

REDC / County Name	Orleans County

Color Code

REQUIRED for the Roll Up Report, though some data may be zero, N/A, or considered to small to count

Report NO Data in cell

DRAFT Roll Up Report CGC. Emissions in MTCDE								
		CO2e	CO2	CH4	N2O	PFC	HFC	SF6
Built Environment	**Residential Energy Consumption**							
	Electricity / Steam	29,567	29,423	20	124			
	Natural Gas	49,121	49,073	19	29			
	Propane / LPG	19,791	19,714	20	58			
	Distillate Fuel Oil (#1, #2, Kerosene)	19,487	19,422	17	49			
	Wood	1,037	-	353	684			
	Commercial Energy Consumption							
	Electricity / Steam	9,501	9,455	6	40			
	Natural Gas	17,789	17,772	7	10			
	Propane / LPG	3,474	3,460	3	10			
	Distillate Fuel Oil (#1, #2, Kerosene)	8,402	8,374	7	21			
	Residual Fuel Oil (#4 and #6)	-						
	Coal	23	23	0	0			
	Wood	158	-	54	104			
	Industrial Energy Consumption							
	Electricity / Steam	20,395	20,295	14	86			
	Natural Gas	8,011	8,003	3	5			
	Propane / LPG	-	-	-	-			
	Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-			
	Residual Fuel Oil (#4 and #6)	-	-	-	-			
	Coal	-	-	-	-			
	Wood	-		-	-			
	Energy Generation and Supply							
	Electricity T/D Losses	3,461	3,444	2	15			
	Natural Gas T/D Losses	10,548		10,548				
	Use of SF6 in the Utility Industry	796						796
	Industrial Processes							
	Cement Production							
	Glass Production							
	Iron and Steel Production							
	Ferroalloy Production							
	Aluminum Production							
	Paper and Pulp							
	Limestone Use							
	Soda Ash Use							
	Semi-Conductor Manufacturing							
	Product Use (ODS Substitutes)							
	All Refrigerants- except utility SF6	9,818					9,818	
Transportation Energy	**On-road ALL (Total reflects subtraction of ethanol)**							
	Motor Gasoline (E-10)	108,783	108,399	287	97			
	Diesel	22,121	22,047	55	19			
	Ethanol							
	Biodiesel							
	Rail							
	Diesel	184	183	0	0			
	Coal							
	Marine							
	Gasoline							
	Distillate	-	-	-	-			
	Residual Fuel Oil	7,187	7,163	18	6			
	Off-road Mobile							
	All Fuels (Diesel and Gasoline)	36,869	36,741	95	32			
Waste Management	**Solid Waste Management**							
	Landfill Methane from FOD of waste generated	6,935	-	6,935	-			
	MSW incineration (non grid connected)							
	Sewage Treatment							
	Central WWTPs and Septic Systems (Total reflects rounding)	6,662		4,441	2,221			
Agriculture	**Livestock**							
	Enteric Fementation	17,831		17,831				
	Manure management	2,599		2,192	407			
	Crop Production and Soil Management							
	Use of Fertilizer	5,616			5,616			
	Crop Residue Incineration							
Grand Totals		426,168	362,992	42,930	9,632	-	9,818	796

Note: Red text represents text added to original template to provide additional information or clarification

REDC Emissions By Source and Sector
Year: 2010

REDC / County Name	Seneca

Color Code

	REQUIRED, though some data may be zero or considered to small to count
	OPTIONAL
	DO NOT Report Data in these cells

DRAFT Reporting Template CGC. Emissions in MTCDE						Rolled Up?	Related GHG Metrics / Activity Data		
		Scope 1	Scope 2	Scope 3	Biogenic		Metric	Unit	Value
Built Environment	**Residential Energy Consumption**								
FL Electricity Consumption	Electricity / Steam		31,853			Yes	Consumption	MMBTU	478,860
FL Direct Residental Fuel Consumption	Natural Gas	43,270				Yes	Consumption	MMBTU	815,314
FL Direct Residental Fuel Consumption	Propane / LPG	18,484				Yes	Consumption	MMBTU	292,334
FL Direct Residental Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	12,823				Yes	Consumption	MMBTU	172,791
FL Direct Residental Fuel Consumption	Wood	427			20,277	Yes	Consumption	MMBTU	216,169
	Commercial Energy Consumption								
FL Electricity Consumption	Electricity / Steam		29,024			Yes	Consumption	MMBTU	436,326
FL Commercial Direct Fuel Consumption	Natural Gas	18,880				Yes	Consumption	MMBTU	355,747
FL Commercial Direct Fuel Consumption	Propane / LPG	3,909				Yes	Consumption	MMBTU	61,825
FL Commercial Direct Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	6,661				Yes	Consumption	MMBTU	89,764
FL Commercial Direct Fuel Consumption	Residual Fuel Oil (#4 and #6)	-				Yes	Consumption	MMBTU	-
FL Commercial Direct Fuel Consumption	Coal	321				Yes	Consumption	MMBTU	3,119
FL Commercial Direct Fuel Consumption	Wood	78			3,726	Yes	Consumption	MMBTU	39,720
	Industrial Energy Consumption								
FL Electricity Consumption	Electricity / Steam		10,002			Yes	Consumption	MMBTU	150,364
FL Industrial Title V Consumption	Natural Gas	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Propane / LPG	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Residual Fuel Oil (#4 and #6)	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Coal	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Wood	-			-	Yes	Consumption	MMBTU	-
Energy Generation and Supply	**Energy Generation and Supply**								
FL Elec Generation GHG Analysis	Coal	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Nuclear	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Natural Gas	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Distillate Fuel Oil (#1, #2 and #4)	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Residual Fuel Oil (#4 and #6)	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Wood / Biomass	-			-	No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	MSW and Landfill gas	423			83,885	No	MSW Combusted	MMBTU	1,610,995
FL Elec Generation GHG Analysis	Other Wind and Hydro	-							-
FL Electricity Consumption	Electricity T/D Losses		4,125			Yes	Losses	MMBTU	62,015
FL Elec Generation GHG Analysis and FL Direct Fuel Consumption	Natural Gas T/D Losses	8,750				Yes	Losses	MMBTU	
FL Electricity Consumption	Use of SF6 in the Utility Industry	753				Yes	Consumption	MMBTU	-
Industrial Processes	**Industrial Processes**								
Not Reported	Cement Production					Yes			
Not Reported	Iron and Steel Production					Yes			
Not Reported	Ferroalloy Production					Yes			
Not Reported	Aluminum Production					Yes			
Not Reported	Paper and Pulp					Yes			

Not Reported	Limestone Use					Yes				
Not Reported	Soda Ash Use					Yes				
Not Reported	Semi-Conductor Manufacturing					Yes				
FL Industrial Sources	Glass Production	-				Yes				
Not Reported	Chemical Manufacturing					Yes				
Product Use (Ozone Depleting Substances)	**Product Use (Ozone Depleting Substances)**									
FL Industrial Sources	All Refrigerants- except SF6	8,071				Yes				
Transportation Energy	**On-road**									
FL Emission Summary - Onroad	Motor Gasoline (E-10)	168,910			12,259	Yes	Consumption	MMBTU	2,575,910	
FL Emission Summary - Onroad	Diesel	38,377				Yes	Consumption	MMBTU	517,143	
Not Reported	Ethanol (E-85)					No	Consumption	MMBTU		
Not Reported	Biodiesel					No	Consumption	MMBTU		
Not Reported	Electricity Consumption					No	Consumption	MMBTU		
	Rail									
FL Emission Summary - Rail	Diesel	596				Yes	Consumption	MMBTU	8,034	
FL Emission Summary - Rail	Coal Consumption	-				Yes	Consumption	MMBTU	-	
FL Emission Summary - Rail	Electric									
	Marine									
FL Emission Summary -Com Marine	Gasoline					Yes	Consumption	MMBTU		
FL Emission Summary -Com Marine	Distillate Fuels	-				Yes	Consumption	MMBTU	-	
FL Emission Summary -Com Marine	Residual Fuels	-				Yes	Consumption	MMBTU	-	
	Air									
FL Emission Summary-Aircraft	All Fuels (Jet and Aviation Gasoline)	267				No	Consumption	MMBTU	3,771	
	Off-road Mobile									
FL Emission Summary-Nonroad	All Fuels (Diesel and Gasoline)	55,889				Yes	Consumption	MMBTU	779,111	
Waste Management	**Solid Waste Management**									
FL Waste	Scope 1: Actual emissions from Waste Facilities in Region. Scope 3: Forward Order Decay estimates for waste generated in region	0		6,775	5,843	Yes - ONLY Scope 3	MSW+CD Generated	Tonnes	21,095	
Not Reported	MSW incineration (non grid connected)					Yes	MSW+CD Processed	Tonnes	-	
	Sewage Treatment						**MSW Sent for Incineration**	**Tonnes**	-	
FL Waste water	Central WWTPs and Septic Systems	2,986				Yes	MSW incinerated in Bounda	Tonnes	-	
Agriculture	**Livestock**									
GHF_FL_Agriculture	Enteric Fermentation	64,553				Yes				
GHF_FL_Agriculture	Manure management	10,340				Yes				
GHF_FL_Agriculture	**Crop Production and Soil Management**									
GHF_FL_Agriculture	Use of Fertilizer	5,712				Yes				
Not Reported	Crop Residue Incineration					No				
Land Use and Forestry										
GHG_FL_Forest	Urban Forest Annual Reserve	4,805				No				
GHG_FL_Forest	Forest Carbon Reserve (TOTAL)	7,724,579				No				

Grand Totals	Gross Totals	469,789	75,004	6,775	125,989	**551,568**
	Total with Aircraft	470,056	75,004	6,775	125,989	**551,835**
	Net Totals					

Note: Red text represents text added to original template to provide additional information or clarificatior

REDC GHG Emissions Roll Up Report
Year: 2010
(all emissions in Column D, when summed will equal the total County or REDC protocol compliant GHG emissions estimate)

REDC / County Name	Seneca County

Color Code

REQUIRED for the Roll Up Report, though some data may be zero, N/A, or considered to small to count

Report NO Data in cell

DRAFT Roll Up Report CGC. Emissions in MTCDE								
		CO2e	CO2	CH4	N2O	PFC	HFC	SF6
Built Environment	**Residential Energy Consumption**							
	Electricity / Steam	31,853	31,698	21	134			
	Natural Gas	43,270	43,228	17	25			
	Propane / LPG	18,484	18,411	18	54			
	Distillate Fuel Oil (#1, #2, Kerosene)	12,823	12,780	11	32			
	Wood	427	-	145	281			
	Commercial Energy Consumption							
	Electricity / Steam	29,024	28,882	19	122			
	Natural Gas	18,880	18,862	7	11			
	Propane / LPG	3,909	3,894	4	11			
	Distillate Fuel Oil (#1, #2, Kerosene)	6,661	6,639	6	17			
	Residual Fuel Oil (#4 and #6)	-						
	Coal	321	318	1	2			
	Wood	78	-	27	52			
	Industrial Energy Consumption							
	Electricity / Steam	10,002	9,953	7	42			
	Natural Gas	-	-	-	-			
	Propane / LPG	-	-	-	-			
	Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-			
	Residual Fuel Oil (#4 and #6)	-	-	-	-			
	Coal	-	-	-	-			
	Wood	-		-	-			
	Energy Generation and Supply							
	Electricity T/D Losses	4,125	4,105	3	17			
	Natural Gas T/D Losses	8,750		8,750				
	Use of SF6 in the Utility Industry	753						753
	Industrial Processes							
	Cement Production							
	Glass Production							
	Iron and Steel Production							
	Ferroalloy Production							
	Aluminum Production							
	Paper and Pulp							
	Limestone Use							
	Soda Ash Use							
	Semi-Conductor Manufacturing							
	Product Use (ODS Substitutes)							
	All Refrigerants- except utility SF6	8,071					8,071	
Transportation Energy	**On-road ALL (Total reflects subtraction of ethanol)**							
	Motor Gasoline (E-10)	168,910	168,313	446	151			
	Diesel	38,377	38,248	96	33			
	Ethanol							
	Biodiesel							
	Rail							
	Diesel	596	594	1	1			
	Coal							
	Marine							
	Gasoline							
	Distillate	-	-	-	-			
	Residual Fuel Oil	-	-	-	-			
	Off-road Mobile							
	All Fuels (Diesel and Gasoline)	55,889	55,695	145	49			
Waste Management	**Solid Waste Management**							
	Landfill Methane from FOD of waste generated	6,775	-	6,775	-			
	MSW incineration (non grid connected)							
	Sewage Treatment							
	Central WWTPs and Septic Systems (Total reflects rounding)	2,986		1,991	995			
Agriculture	**Livestock**							
	Enteric Fementation	64,553		64,553				
	Manure management	10,340		8,986	1,353			
	Crop Production and Soil Management							
	Use of Fertilizer	5,712			5,712			
	Crop Residue Incineration							
Grand Totals		551,568	441,621	92,029	9,094	-	8,071	753

Note: Red text represents text added to original template to provide additional information or clarification

REDC Emissions By Source and Sector
Year: 2010

REDC / County Name	Wayne

Color Code

	REQUIRED, though some data may be zero or considered to small to count
	OPTIONAL
	DO NOT Report Data in these cells

DRAFT Reporting Template CGC. Emissions in MTCDE						Rolled Up?	Related GHG Metrics / Activity Data		
		Scope 1	Scope 2	Scope 3	Biogenic		Metric	Unit	Value
Built Environment	**Residential Energy Consumption**								
FL Electricity Consumption	Electricity / Steam		45,997			Yes	Consumption	MMBTU	691,490
FL Direct Residental Fuel Consumption	Natural Gas	145,548				Yes	Consumption	MMBTU	2,742,466
FL Direct Residental Fuel Consumption	Propane / LPG	28,985				Yes	Consumption	MMBTU	458,420
FL Direct Residental Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	34,232				Yes	Consumption	MMBTU	461,287
FL Direct Residental Fuel Consumption	Wood	1,692			80,378	Yes	Consumption	MMBTU	856,904
	Commercial Energy Consumption								
FL Electricity Consumption	Electricity / Steam		26,550			Yes	Consumption	MMBTU	399,135
FL Commercial Direct Fuel Consumption	Natural Gas	55,006				Yes	Consumption	MMBTU	1,036,438
FL Commercial Direct Fuel Consumption	Propane / LPG	5,309				Yes	Consumption	MMBTU	83,971
FL Commercial Direct Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	15,403				Yes	Consumption	MMBTU	207,556
FL Commercial Direct Fuel Consumption	Residual Fuel Oil (#4 and #6)	-				Yes	Consumption	MMBTU	-
FL Commercial Direct Fuel Consumption	Coal	78				Yes	Consumption	MMBTU	760
FL Commercial Direct Fuel Consumption	Wood	269			12,792	Yes	Consumption	MMBTU	136,376
	Industrial Energy Consumption								
FL Electricity Consumption	Electricity / Steam		20,402			Yes	Consumption	MMBTU	306,712
FL Industrial Title V Consumption	Natural Gas	9,580				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Propane / LPG	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Residual Fuel Oil (#4 and #6)	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Coal	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Wood	-			-	Yes	Consumption	MMBTU	-
Energy Generation and Supply	**Energy Generation and Supply**								
FL Elec Generation GHG Analysis	Coal	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Nuclear	-				No	Generation	MMBTU	51,754,929
FL Elec Generation GHG Analysis	Natural Gas	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Distillate Fuel Oil (#1, #2 and #4)	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Residual Fuel Oil (#4 and #6)	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Wood / Biomass	-			-	No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	MSW and Landfill gas	-			-	No	MSW Combusted	MMBTU	-
FL Elec Generation GHG Analysis	Other Wind and Hydro	-							-
FL Electricity Consumption	Electricity T/D Losses	-	5,410			Yes	Losses	MMBTU	81,325
FL Elec Generation GHG Analysis and FL Direct Fuel Consumption	Natural Gas T/D Losses	29,585				Yes	Losses	MMBTU	
FL Electricity Consumption	Use of SF6 in the Utility Industry	949				Yes	Consumption	MMBTU	-
Industrial Processes	**Industrial Processes**								
Not Reported	Cement Production					Yes			
Not Reported	Iron and Steel Production					Yes			
Not Reported	Ferroalloy Production					Yes			
Not Reported	Aluminum Production					Yes			
Not Reported	Paper and Pulp					Yes			

Not Reported	Limestone Use					Yes				
Not Reported	Soda Ash Use					Yes				
Not Reported	Semi-Conductor Manufacturing					Yes				
FL Industrial Sources	Glass Production	-				Yes				
Not Reported	Chemical Manufacturing					Yes				
Product Use (Ozone Depleting Substances)	**Product Use (Ozone Depleting Substances)**									
FL Industrial Sources	All Refrigerants- except SF6	21,469				Yes				
Transportation Energy	**On-road**									
FL Emission Summary - Onroad	Motor Gasoline (E-10)	265,959			19,303	Yes	Consumption	MMBTU	4,055,928	
FL Emission Summary - Onroad	Diesel	27,253				Yes	Consumption	MMBTU	442,298	
Not Reported	Ethanol (E-85)					No	Consumption	MMBTU		
Not Reported	Biodiesel					No	Consumption	MMBTU		
Not Reported	Electricity Consumption					No	Consumption	MMBTU		
	Rail									
FL Emission Summary - Rail	Diesel	28,083				Yes	Consumption	MMBTU	378,425	
FL Emission Summary - Rail	Coal Consumption	-				Yes	Consumption	MMBTU	-	
FL Emission Summary - Rail	Electric									
	Marine									
FL Emission Summary -Com Marine	Gasoline					Yes	Consumption	MMBTU		
FL Emission Summary -Com Marine	Distillate Fuels	-				Yes	Consumption	MMBTU	-	
FL Emission Summary -Com Marine	Residual Fuels	-				Yes	Consumption	MMBTU	-	
	Air									
FL Emission Summary-Aircraft	All Fuels (Jet and Aviation Gasoline)	526				No	Consumption	MMBTU	7,364	
	Off-road Mobile									
FL Emission Summary-Nonroad	All Fuels (Diesel and Gasoline)	64,124				Yes	Consumption	MMBTU	897,883	
Waste Management	**Solid Waste Management**									
FL Waste	Scope 1: Actual emissions from Waste Facilities in Region. Scope 3: Forward Order Decay estimates for waste generated in region	178,143		34,819	15,543	Yes - ONLY Scope 3	MSW+CD Generated	Tonnes	108,417	
Not Reported	MSW incineration (non grid connected)					Yes	MSW+CD Processed	Tonnes	1,618,021	
	Sewage Treatment						MSW Sent for Incineration	Tonnes	-	
FL Waste water	Central WWTPs and Septic Systems	4,808				Yes	MSW incinerated in Bounda	Tonnes	-	
Agriculture	**Livestock**									
GHF_FL_Agriculture	Enteric Fermentation	39,678				Yes				
GHF_FL_Agriculture	Manure management	7,275				Yes				
GHF_FL_Agriculture	**Crop Production and Soil Management**									
GHF_FL_Agriculture	Use of Fertilizer	6,333				Yes				
Not Reported	Crop Residue Incineration					No				
Land Use and Forestry										
GHG_FL_Forest	Urban Forest Annual Reserve	19,169				No				
GHG_FL_Forest	Forest Carbon Reserve (TOTAL)	20,231,860				No				

Grand Totals	Gross Totals	791,618	98,358	34,819	128,015	**924,795**
	Total with Aircraft	792,144	98,358	34,819	128,015	**925,321**
	Net Totals					

Note: Red text represents text added to original template to provide additional information or clarificatior

REDC GHG Emissions Roll Up Report
Year: 2010
(all emissions in Column D, when summed will equal the total County or REDC protocol compliant GHG emissions estimate)

REDC / County Name	Wayne County

Color Code

REQUIRED for the Roll Up Report, though some data may be zero, N/A, or considered to small to count

Report NO Data in cell

DRAFT Roll Up Report CGC. Emissions in MTCDE								
		CO2e	CO2	CH4	N2O	PFC	HFC	SF6
Built Environment	**Residential Energy Consumption**							
	Electricity / Steam	45,997	45,773	31	193			
	Natural Gas	145,548	145,406	58	85			
	Propane / LPG	28,985	28,871	29	85			
	Distillate Fuel Oil (#1, #2, Kerosene)	34,232	34,117	29	86			
	Wood	1,692	-	576	1,116			
	Commercial Energy Consumption							
	Electricity / Steam	26,550	26,421	18	111			
	Natural Gas	55,006	54,952	22	32			
	Propane / LPG	5,309	5,289	5	16			
	Distillate Fuel Oil (#1, #2, Kerosene)	15,403	15,351	13	39			
	Residual Fuel Oil (#4 and #6)	-						
	Coal	78	78	0	0			
	Wood	269	-	92	178			
	Industrial Energy Consumption							
	Electricity / Steam	20,402	20,303	14	86			
	Natural Gas	9,580	9,571	4	6			
	Propane / LPG	-	-	-	-			
	Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-			
	Residual Fuel Oil (#4 and #6)	-	-	-	-			
	Coal	-	-	-	-			
	Wood	-		-	-			
	Energy Generation and Supply							
	Electricity T/D Losses	5,410	5,383	4	23			
	Natural Gas T/D Losses	29,585		29,585				
	Use of SF6 in the Utility Industry	949						949
	Industrial Processes							
	Cement Production							
	Glass Production							
	Iron and Steel Production							
	Ferroalloy Production							
	Aluminum Production							
	Paper and Pulp							
	Limestone Use							
	Soda Ash Use							
	Semi-Conductor Manufacturing							
	Product Use (ODS Substitutes)							
	All Refrigerants- except utility SF6	21,469					21,469	
Transportation Energy	**On-road ALL (Total reflects subtraction of ethanol)**							
	Motor Gasoline (E-10)	265,959	265,019	702	238			
	Diesel	27,253	27,162	68	23			
	Ethanol							
	Biodiesel							
	Rail							
	Diesel	28,083	27,988	70	24			
	Coal							
	Marine							
	Gasoline							
	Distillate	-	-	-	-			
	Residual Fuel Oil	-	-	-	-			
	Off-road Mobile							
	All Fuels (Diesel and Gasoline)	64,124	63,902	166	56			
Waste Management	**Solid Waste Management**							
	Landfill Methane from FOD of waste generated	34,819	-	34,819	-			
	MSW incineration (non grid connected)							
	Sewage Treatment							
	Central WWTPs and Septic Systems (Total reflects rounding)	4,808		3,205	1,603			
Agriculture	**Livestock**							
	Enteric Fementation	39,678		39,678				
	Manure management	7,275		6,125	1,149			
	Crop Production and Soil Management							
	Use of Fertilizer	6,333			6,333			
	Crop Residue Incineration							
Grand Totals		924,795	775,584	115,312	11,481	-	21,469	949

Note: Red text represents text added to original template to provide additional information or clarification

REDC Emissions By Source and Sector
Year: 2010

REDC / County Name	Wyoming

Color Code

	REQUIRED, though some data may be zero or considered to small to count
	OPTIONAL
	DO NOT Report Data in these cells

DRAFT Reporting Template CGC. Emissions in MTCDE							Related GHG Metrics / Activity Data		
		Scope 1	Scope 2	Scope 3	Biogenic	Rolled Up?	Metric	Unit	Value
Built Environment	**Residential Energy Consumption**								
FL Electricity Consumption	Electricity / Steam		91,616			Yes	Consumption	MMBTU	1,377,307
FL Direct Residental Fuel Consumption	Natural Gas	55,511				Yes	Consumption	MMBTU	1,045,955
FL Direct Residental Fuel Consumption	Propane / LPG	12,136				Yes	Consumption	MMBTU	191,943
FL Direct Residental Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	11,463				Yes	Consumption	MMBTU	154,466
FL Direct Residental Fuel Consumption	Wood	1,401			66,582	Yes	Consumption	MMBTU	709,832
	Commercial Energy Consumption								
FL Electricity Consumption	Electricity / Steam		99,474			Yes	Consumption	MMBTU	1,495,442
FL Commercial Direct Fuel Consumption	Natural Gas	25,462				Yes	Consumption	MMBTU	479,772
FL Commercial Direct Fuel Consumption	Propane / LPG	2,698				Yes	Consumption	MMBTU	42,674
FL Commercial Direct Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	6,260				Yes	Consumption	MMBTU	84,356
FL Commercial Direct Fuel Consumption	Residual Fuel Oil (#4 and #6)	-				Yes	Consumption	MMBTU	-
FL Commercial Direct Fuel Consumption	Coal	198				Yes	Consumption	MMBTU	1,924
FL Commercial Direct Fuel Consumption	Wood	271			12,861	Yes	Consumption	MMBTU	137,114
	Industrial Energy Consumption								
FL Electricity Consumption	Electricity / Steam		67,979			Yes	Consumption	MMBTU	1,021,967
FL Industrial Title V Consumption	Natural Gas	8,757				Yes	Consumption	MMBTU	165,008
FL Industrial Title V Consumption	Propane / LPG	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Residual Fuel Oil (#4 and #6)	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Coal	102,762				Yes	Consumption	MMBTU	1,091,736
FL Industrial Title V Consumption	Wood	-			-	Yes	Consumption	MMBTU	-
Energy Generation and Supply	**Energy Generation and Supply**								
FL Elec Generation GHG Analysis	Coal	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Nuclear	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Natural Gas	5,935				No	Generation	MMBTU	111,824
FL Elec Generation GHG Analysis	Distillate Fuel Oil (#1, #2 and #4)	177				No	Generation	MMBTU	2,390
FL Elec Generation GHG Analysis	Residual Fuel Oil (#4 and #6)	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Wood / Biomass	-			-	No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	MSW and Landfill gas	-			-	No	MSW Combusted	MMBTU	-
FL Elec Generation GHG Analysis	Other Wind and Hydro	-							6,788,901
FL Electricity Consumption	Electricity T/D Losses	-	15,078			Yes	Losses	MMBTU	226,673
FL Elec Generation GHG Analysis and FL Direct Fuel Consumption	Natural Gas T/D Losses	13,480				Yes	Losses	MMBTU	
FL Electricity Consumption	Use of SF6 in the Utility Industry	1,244				Yes	Consumption	MMBTU	-
Industrial Processes	**Industrial Processes**								
Not Reported	Cement Production					Yes			
Not Reported	Iron and Steel Production					Yes			
Not Reported	Ferroalloy Production					Yes			
Not Reported	Aluminum Production					Yes			
Not Reported	Paper and Pulp					Yes			

Not Reported	Limestone Use					Yes				
Not Reported	Soda Ash Use					Yes				
Not Reported	Semi-Conductor Manufacturing					Yes				
FL Industrial Sources	Glass Production	-				Yes				
Not Reported	Chemical Manufacturing					Yes				
Product Use (Ozone Depleting Substances)	**Product Use (Ozone Depleting Substances)**									
FL Industrial Sources	All Refrigerants- except SF6	9,652				Yes				
Transportation Energy	**On-road**									
FL Emission Summary - Onroad	Motor Gasoline (E-10)	131,001			9,508	Yes	Consumption	MMBTU	1,997,798	
FL Emission Summary - Onroad	Diesel	22,222				Yes	Consumption	MMBTU	360,648	
Not Reported	Ethanol (E-85)					No	Consumption	MMBTU		
Not Reported	Biodiesel					No	Consumption	MMBTU		
Not Reported	Electricity Consumption					No	Consumption	MMBTU		
	Rail									
FL Emission Summary - Rail	Diesel	6,281				Yes	Consumption	MMBTU	84,384	
FL Emission Summary - Rail	Coal Consumption	7				Yes	Consumption	MMBTU	280	
FL Emission Summary - Rail	Electric									
	Marine									
FL Emission Summary -Com Marine	Gasoline					Yes	Consumption	MMBTU		
FL Emission Summary -Com Marine	Distillate Fuels	-				Yes	Consumption	MMBTU	-	
FL Emission Summary -Com Marine	Residual Fuels	-				Yes	Consumption	MMBTU	-	
	Air									
FL Emission Summary-Aircraft	All Fuels (Jet and Aviation Gasoline)	343				No	Consumption	MMBTU	4,835	
	Off-road Mobile									
FL Emission Summary-Nonroad	All Fuels (Diesel and Gasoline)	42,643				Yes	Consumption	MMBTU	592,030	
Waste Management	**Solid Waste Management**									
FL Waste	Scope 1: Actual emissions from Waste Facilities in Region. Scope 3: Forward Order Decay estimates for waste generated in region	0		6,449	6,987	Yes - ONLY Scope 3	MSW+CD Generated	Tonnes	20,082	
Not Reported	MSW incineration (non grid connected)					Yes	MSW+CD Processed	Tonnes	-	
	Sewage Treatment						MSW Sent for Incineration	Tonnes	-	
FL Waste water	Central WWTPs and Septic Systems	2,102				Yes	MSW incinerated in Bounda	Tonnes	-	
Agriculture	**Livestock**									
GHF_FL_Agriculture	Enteric Fermentation	202,771				Yes				
GHF_FL_Agriculture	Manure management	41,772				Yes				
GHF_FL_Agriculture	**Crop Production and Soil Management**									
GHF_FL_Agriculture	Use of Fertilizer	8,699				Yes				
Not Reported	Crop Residue Incineration					No				
Land Use and Forestry										
GHG_FL_Forest	Urban Forest Annual Reserve	7,974				No				
GHG_FL_Forest	Forest Carbon Reserve (TOTAL)	28,953,598				No				

Grand Totals	Gross Totals	708,794	274,148	6,449	95,938	**989,391**
	Total with Aircraft	709,137	274,148	6,449	95,938	**989,734**
	Net Totals					

Note: Red text represents text added to original template to provide additional information or clarificatior

REDC GHG Emissions Roll Up Report
Year: 2010
(all emissions in Column D, when summed will equal the total County or REDC protocol compliant GHG emissions estimate)

REDC / County Name	Wyoming County

Color Code

REQUIRED for the Roll Up Report, though some data may be zero, N/A, or considered to small to count

Report NO Data in cell

DRAFT Roll Up Report CGC. Emissions in MTCDE								
		CO2e	CO2	CH4	N2O	PFC	HFC	SF6
Built Environment	**Residential Energy Consumption**							
	Electricity / Steam	91,616	91,171	61	384			
	Natural Gas	55,511	55,457	22	32			
	Propane / LPG	12,136	12,089	12	36			
	Distillate Fuel Oil (#1, #2, Kerosene)	11,463	11,424	10	29			
	Wood	1,401	-	477	924			
	Commercial Energy Consumption							
	Electricity / Steam	99,474	98,990	67	417			
	Natural Gas	25,462	25,438	10	15			
	Propane / LPG	2,698	2,688	3	8			
	Distillate Fuel Oil (#1, #2, Kerosene)	6,260	6,239	5	16			
	Residual Fuel Oil (#4 and #6)	-						
	Coal	198	196	0	1			
	Wood	271	-	92	179			
	Industrial Energy Consumption							
	Electricity / Steam	67,979	67,649	45	285			
	Natural Gas	8,757	8,749	3	5			
	Propane / LPG	-	-	-	-			
	Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-			
	Residual Fuel Oil (#4 and #6)	-	-	-	-			
	Coal	102,762	101,968	252	542			
	Wood	-		-	-			
	Energy Generation and Supply							
	Electricity T/D Losses	15,078	15,005	10	63			
	Natural Gas T/D Losses	13,480		13,480				
	Use of SF6 in the Utility Industry	1,244						1,244
	Industrial Processes							
	Cement Production							
	Glass Production							
	Iron and Steel Production							
	Ferroalloy Production							
	Aluminum Production							
	Paper and Pulp							
	Limestone Use							
	Soda Ash Use							
	Semi-Conductor Manufacturing							
	Product Use (ODS Substitutes)							
	All Refrigerants- except utility SF6	9,652					9,652	
Transportation Energy	**On-road ALL (Total reflects subtraction of ethanol)**							
	Motor Gasoline (E-10)	131,001	130,538	346	117			
	Diesel	22,222	22,148	55	19			
	Ethanol							
	Biodiesel							
	Rail							
	Diesel	6,281	6,260	16	5			
	Coal	7	7	0	0			
	Marine							
	Gasoline							
	Distillate	-	-	-	-			
	Residual Fuel Oil	-	-	-	-			
	Off-road Mobile							
	All Fuels (Diesel and Gasoline)	42,643	42,496	110	37			
Waste Management	**Solid Waste Management**							
	Landfill Methane from FOD of waste generated	6,449	-	6,449	-			
	MSW incineration (non grid connected)							
	Sewage Treatment							
	Central WWTPs and Septic Systems (Total reflects rounding)	2,102		1,401	701			
Agriculture	**Livestock**							
	Enteric Fementation	202,771		202,771				
	Manure management	41,772		34,551	7,221			
	Crop Production and Soil Management							
	Use of Fertilizer	8,699			8,699			
	Crop Residue Incineration							
Grand Totals		989,391	698,511	260,250	19,735	-	9,652	1,244

Note: Red text represents text added to original template to provide additional information or clarification

REDC Emissions By Source and Sector
Year: 2010

REDC / County Name	Yates

Color Code

	REQUIRED, though some data may be zero or considered to small to count
	OPTIONAL
	DO NOT Report Data in these cells

DRAFT Reporting Template CGC. Emissions in MTCDE						Rolled Up?	Related GHG Metrics / Activity Data		
		Scope 1	Scope 2	Scope 3	Biogenic		Metric	Unit	Value
Built Environment	**Residential Energy Consumption**								
FL Electricity Consumption	Electricity / Steam		31,574			Yes	Consumption	MMBTU	474,672
FL Direct Residental Fuel Consumption	Natural Gas	21,760				Yes	Consumption	MMBTU	410,000
FL Direct Residental Fuel Consumption	Propane / LPG	18,009				Yes	Consumption	MMBTU	284,826
FL Direct Residental Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	8,815				Yes	Consumption	MMBTU	118,788
FL Direct Residental Fuel Consumption	Wood	895			42,542	Yes	Consumption	MMBTU	453,534
	Commercial Energy Consumption								
FL Electricity Consumption	Electricity / Steam		8,551			Yes	Consumption	MMBTU	128,549
FL Commercial Direct Fuel Consumption	Natural Gas	8,435				Yes	Consumption	MMBTU	158,932
FL Commercial Direct Fuel Consumption	Propane / LPG	3,384				Yes	Consumption	MMBTU	53,515
FL Commercial Direct Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	4,068				Yes	Consumption	MMBTU	54,823
FL Commercial Direct Fuel Consumption	Residual Fuel Oil (#4 and #6)	-				Yes	Consumption	MMBTU	-
FL Commercial Direct Fuel Consumption	Coal	87				Yes	Consumption	MMBTU	843
FL Commercial Direct Fuel Consumption	Wood	146			6,945	Yes	Consumption	MMBTU	74,036
	Industrial Energy Consumption								
FL Electricity Consumption	Electricity / Steam		16,091			Yes	Consumption	MMBTU	241,908
FL Industrial Title V Consumption	Natural Gas	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Propane / LPG	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Residual Fuel Oil (#4 and #6)	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Coal	-				Yes	Consumption	MMBTU	-
FL Industrial Title V Consumption	Wood	-			-	Yes	Consumption	MMBTU	-
Energy Generation and Supply	**Energy Generation and Supply**								
FL Elec Generation GHG Analysis	Coal	574,429				No	Generation	MMBTU	5,876,692
FL Elec Generation GHG Analysis	Nuclear	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Natural Gas	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Distillate Fuel Oil (#1, #2 and #4)	421				No	Generation	MMBTU	5,670
FL Elec Generation GHG Analysis	Residual Fuel Oil (#4 and #6)	-				No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	Wood / Biomass	-			-	No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	MSW and Landfill gas	-			-	No	MSW Combusted	MMBTU	-
FL Elec Generation GHG Analysis	Other Wind and Hydro	-							-
FL Electricity Consumption	Electricity T/D Losses	-	3,272			Yes	Losses	MMBTU	49,186
FL Elec Generation GHG Analysis and FL Direct Fuel Consumption	Natural Gas T/D Losses	4,251				Yes	Losses	MMBTU	
FL Electricity Consumption	Use of SF6 in the Utility Industry	3,468				Yes	Consumption	MMBTU	-
Industrial Processes	**Industrial Processes**								
Not Reported	Cement Production					Yes			
Not Reported	Iron and Steel Production					Yes			
Not Reported	Ferroalloy Production					Yes			
Not Reported	Aluminum Production					Yes			
Not Reported	Paper and Pulp					Yes			

Not Reported	Limestone Use					Yes				
Not Reported	Soda Ash Use					Yes				
Not Reported	Semi-Conductor Manufacturing					Yes				
FL Industrial Sources	Glass Production	-				Yes				
Not Reported	Chemical Manufacturing					Yes				
Product Use (Ozone Depleting Substances)	**Product Use (Ozone Depleting Substances)**									
FL Industrial Sources	All Refrigerants- except SF6	5,804				Yes				
Transportation Energy	**On-road**									
FL Emission Summary - Onroad	Motor Gasoline (E-10)	72,278			5,246	Yes	Consumption	MMBTU	1,102,252	
FL Emission Summary - Onroad	Diesel	21,106				Yes	Consumption	MMBTU	284,413	
Not Reported	Ethanol (E-85)					No	Consumption	MMBTU		
Not Reported	Biodiesel					No	Consumption	MMBTU		
Not Reported	Electricity Consumption					No	Consumption	MMBTU		
	Rail									
FL Emission Summary - Rail	Diesel	1,089				Yes	Consumption	MMBTU	14,681	
FL Emission Summary - Rail	Coal Consumption	-				Yes	Consumption	MMBTU	-	
FL Emission Summary - Rail	Electric									
	Marine									
FL Emission Summary -Com Marine	Gasoline					Yes	Consumption	MMBTU		
FL Emission Summary -Com Marine	Distillate Fuels	-				Yes	Consumption	MMBTU	-	
FL Emission Summary -Com Marine	Residual Fuels	-				Yes	Consumption	MMBTU	-	
	Air									
FL Emission Summary-Aircraft	All Fuels (Jet and Aviation Gasoline)	981				No	Consumption	MMBTU	13,752	
	Off-road Mobile									
FL Emission Summary-Nonroad	All Fuels (Diesel and Gasoline)	40,212				Yes	Consumption	MMBTU	562,680	
Waste Management	**Solid Waste Management**									
FL Waste	Scope 1: Actual emissions from Waste Facilities in Region. Scope 3: Forward Order Decay estimates for waste generated in region	0		5,103	4,201	Yes - ONLY Scope 3	MSW+CD Generated	Tonnes	15,890	
Not Reported	MSW incineration (non grid connected)					Yes	MSW+CD Processed	Tonnes	-	
	Sewage Treatment						MSW Sent for Incineration	Tonnes	-	
FL Waste water	Central WWTPs and Septic Systems	1,085				Yes	MSW incinerated in Bounda	Tonnes	-	
Agriculture	**Livestock**									
GHF_FL_Agriculture	Enteric Fermentation	64,475				Yes				
GHF_FL_Agriculture	Manure management	11,651				Yes				
GHF_FL_Agriculture	**Crop Production and Soil Management**									
GHF_FL_Agriculture	Use of Fertilizer	4,407				Yes				
Not Reported	Crop Residue Incineration					No				
Land Use and Forestry										
GHG_FL_Forest	Urban Forest Annual Reserve	969				No				
GHG_FL_Forest	Forest Carbon Reserve (TOTAL)	15,935,289				No				

Grand Totals	Gross Totals	295,424	59,488	5,103	58,933	**360,016**
	Total with Aircraft	296,406	59,488	5,103	58,933	**360,997**
	Net Totals					

Note: Red text represents text added to original template to provide additional information or clarificatior

REDC GHG Emissions Roll Up Report
Year: 2010
(all emissions in Column D, when summed will equal the total County or REDC protocol compliant GHG emissions estimate)

REDC / County Name	Yates County

Color Code

REQUIRED for the Roll Up Report, though some data may be zero, N/A, or considered to small to count

Report NO Data in cell

DRAFT Roll Up Report CGC. Emissions in MTCDE								
		CO2e	CO2	CH4	N2O	PFC	HFC	SF6
Built Environment	**Residential Energy Consumption**							
	Electricity / Steam	31,574	31,421	21	132			
	Natural Gas	21,760	21,738	9	13			
	Propane / LPG	18,009	17,938	18	53			
	Distillate Fuel Oil (#1, #2, Kerosene)	8,815	8,786	7	22			
	Wood	895	-	305	591			
	Commercial Energy Consumption							
	Electricity / Steam	8,551	8,509	6	36			
	Natural Gas	8,435	8,427	3	5			
	Propane / LPG	3,384	3,370	3	10			
	Distillate Fuel Oil (#1, #2, Kerosene)	4,068	4,055	3	10			
	Residual Fuel Oil (#4 and #6)	-						
	Coal	87	86	0	0			
	Wood	146	-	50	96			
	Industrial Energy Consumption							
	Electricity / Steam	16,091	16,013	11	67			
	Natural Gas	-	-	-	-			
	Propane / LPG	-	-	-	-			
	Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-			
	Residual Fuel Oil (#4 and #6)	-	-	-	-			
	Coal	-	-	-	-			
	Wood	-		-	-			
	Energy Generation and Supply							
	Electricity T/D Losses	3,272	3,256	2	14			
	Natural Gas T/D Losses	4,251		4,251				
	Use of SF6 in the Utility Industry	3,468						3,468
	Industrial Processes							
	Cement Production							
	Glass Production							
	Iron and Steel Production							
	Ferroalloy Production							
	Aluminum Production							
	Paper and Pulp							
	Limestone Use							
	Soda Ash Use							
	Semi-Conductor Manufacturing							
	Product Use (ODS Substitutes)							
	All Refrigerants- except utility SF6	5,804					5,804	
Transportation Energy	**On-road ALL (Total reflects subtraction of ethanol)**							
	Motor Gasoline (E-10)	72,278	72,022	191	65			
	Diesel	21,106	21,035	53	18			
	Ethanol							
	Biodiesel							
	Rail							
	Diesel	1,089	1,086	3	1			
	Coal							
	Marine							
	Gasoline							
	Distillate	-	-	-	-			
	Residual Fuel Oil	-	-	-	-			
	Off-road Mobile							
	All Fuels (Diesel and Gasoline)	40,212	40,072	104	35			
Waste Management	**Solid Waste Management**							
	Landfill Methane from FOD of waste generated	5,103	-	5,103	-			
	MSW incineration (non grid connected)							
	Sewage Treatment							
	Central WWTPs and Septic Systems (Total reflects rounding)	1,085		723	362			
Agriculture	**Livestock**							
	Enteric Fementation	64,475		64,475				
	Manure management	11,651		9,766	1,885			
	Crop Production and Soil Management							
	Use of Fertilizer	4,407			4,407			
	Crop Residue Incineration							
Grand Totals		360,016	257,814	85,108	7,822	-	5,804	3,468

Note: Red text represents text added to original template to provide additional information or clarification

Electricity Consumption GHG Emissions

County	# Households[2]	Population[2]	MWh	MMBTU[3]	CO2e (Metric Tons)[1] CO2	CH4	N2O	Total
New York State[4]	**7,317,755**	**19,378,102**	**144,624,000**					
Finger Lakes	**482,693**	**1,217,156**	**11,185,511**	**38,164,962**	**2,526,320**	**1,698**	**10,648**	**2,538,667**
Genesee	23,728	60,079	407,401	1,390,052	92,014	62	388	92,464
Livingston	24,409	65,393	505,307	1,724,106	114,127	77	481	114,685
Monroe	300,422	744,344	6,693,635	22,838,683	1,511,801	1,016	6,372	1,519,190
Ontario	43,019	107,931	1,206,172	4,115,459	272,422	183	1,148	273,753
Orleans	16,119	42,883	261,996	893,930	59,173	40	249	59,463
Seneca	13,393	35,251	312,295	1,065,549	70,534	47	297	70,878
Wayne	36,585	93,772	409,536	1,397,337	92,496	62	390	92,948
Wyoming	15,501	42,155	1,141,476	3,894,717	257,810	173	1,087	259,070
Yates	9,517	25,348	247,693	845,129	55,943	38	236	56,216

Sector	% of total	Population	MWh	MMBTU[3]	CO2e (Metric Tons)[1] CO2	CH4	N2O	Total
Finger Lakes		**1,217,156**	**19,860,801**	**67,765,055**	**4,485,691**	**3,016**	**18,907**	**4,507,614**
Residential	**22%**		**4,423,668**	**15,093,554**	**999,114**	**672**	**4,211**	**1,003,997**
Genesee	0.9%	60,079	171,511	585,195	38,737	26	163	38,926
Livingston	1.1%	65,393	222,084	757,749	50,159	34	211	50,404
Monroe	12.9%	744,344	2,569,350	8,766,622	580,304	390	2,446	583,141
Ontario	2.2%	107,931	444,656	1,517,168	100,429	68	423	100,919
Orleans	0.7%	42,883	130,273	444,492	29,423	20	124	29,567
Seneca	0.7%	35,251	140,346	478,860	31,698	21	134	31,853
Wayne	1.0%	93,772	202,664	691,490	45,773	31	193	45,997
Wyoming	2.0%	42,155	403,666	1,377,307	91,171	61	384	91,616
Yates	0.7%	25,348	139,118	474,672	31,421	21	132	31,574
Commercial[5]	**21%**		**4,251,623**	**14,506,538**	**960,257**	**646**	**4,047**	**964,950**
Genesee	0.5%	60,079	92,989	317,278	21,002	14	89	21,105
Livingston	0.7%	65,393	137,030	467,546	30,949	21	130	31,100
Monroe	14.0%	744,344	2,777,890	9,478,160	627,404	422	2,644	630,471
Ontario	2.4%	107,931	481,028	1,641,268	108,643	73	458	109,174
Orleans	0.2%	42,883	41,863	142,835	9,455	6	40	9,501
Seneca	0.6%	35,251	127,880	436,326	28,882	19	122	29,024
Wayne	0.6%	93,772	116,980	399,135	26,421	18	111	26,550
Wyoming	2.2%	42,155	438,289	1,495,442	98,990	67	417	99,474
Yates	0.2%	25,348	37,676	128,549	8,509	6	36	8,551
Industrial	**13%**		**2,510,220**	**8,564,870**	**566,949**	**381**	**2,390**	**569,720**
Genesee	0.7%	60,079	142,901	487,578	32,275	22	136	32,433
Livingston	0.7%	65,393	146,193	498,811	33,019	22	139	33,180
Monroe	6.8%	744,344	1,346,396	4,593,902	304,092	204	1,282	305,578
Ontario	1.4%	107,931	280,488	957,024	63,350	43	267	63,660
Orleans	0.5%	42,883	89,860	306,603	20,295	14	86	20,395
Seneca	0.2%	35,251	44,069	150,364	9,953	7	42	10,002
Wayne	0.5%	93,772	89,892	306,712	20,303	14	86	20,402
Wyoming	1.5%	42,155	299,521	1,021,967	67,649	45	285	67,979
Yates	0.4%	25,348	70,899	241,908	16,013	11	67	16,091

Notes

1. CO2e calculated based on regional electricity consumption provided by National Grid , NYSEG, RG&E and municiple electricity providers using alternative method and eGRID 2012 NYUP emission factors.

2. 2010 US Census
3. 1 MWh = 3.412 MMBtu
4. New York State Totals from EIA New York http://www.eia.gov/electricity/state/newyork/
5. Commercial totals include commerical and government sectors

Grid Losses (Energy and Emissions) from Electricity Consumption[1]

County	MWh	MMBTU[3]	CO2e (Metric Tons) CO2	CH4	N2O	Total
Finger Lakes	**650,997**	**2,221,201**	**147,032**	**99**	**620**	**147,750**
Genesee	23,711	80,901	5,355	4	23	5,381
Livingston	29,409	100,343	6,642	4	28	6,675
Monroe	389,570	1,329,211	87,987	59	371	88,417
Ontario	70,199	239,520	15,855	11	67	15,932
Orleans	15,248	52,027	3,444	2	15	3,461
Seneca	18,176	62,015	4,105	3	17	4,125
Wayne	23,835	81,325	5,383	4	23	5,410
Wyoming	66,434	226,673	15,005	10	63	15,078
Yates	14,416	49,186	3,256	2	14	3,272

1. CO2e calculated based on regional electricity consumption emissions and eGRID 2012 reported Eastern Grid loss rate of 5.82%

Electrical Transmission and Distribution--SF6 Emissions

County	MWh[2]	CO2e (Metric Tons)[1] SF6[3]
United States[1,2]	**3,884,000,000**	**11,800,000**
Finger Lakes	**11,185,511**	**33,983**
Genesee	407,401	1,238
Livingston	505,307	1,535
Monroe	6,693,635	20,336
Ontario	1,206,172	3,664
Orleans	261,996	796
Seneca	247,693	753
Wyoming	312,295	949
Wayne	409,536	1,244
Yates	1,141,476	3,468

1. CO2e calculated based on ratio of regional and national electricity consumption and reported national SF6 emissions.
2. U.S.Electricity end use consumption from EIA Annual Review, 2010 http://www.eia.gov/totalenergy/data/annual/showtext.cfm?t=ptb0801
3. U.S. SF6 emissions from U.S. Greenhouse Gas Inventory Report for 2010:http://www.epa.gov/climatechange/ghgemissions/usinventoryreport.html

Electricity Consumption Vs. Generation

Total kwh consumption estimate for Finger Lakes in 2010:	**11,185,511**
Total kwh consumption + Grid Loss estimate for Finger Lakes in 2010:	**11,836,507**
Total kwh generated in Finger Lakes in 2010:	**7,001,975**
Total estimated kwh imported into Finger Lakes in 2010:	**4,834,532**

Supporting data and calculations are provided in the following E&E Excel Workbook:
File Name:
FL Electricity Consumption1_3_2013.xlsx
Date:
11/14/2012

Electricity Generation GHG Emissions

	Total Fuel Consumption[1]	Units	Total Fuel Consumption (MMBTU)	MWh Generated	CO2e (Metric Tons)[1] Non-biogenic CO2	CH4	N2O	Non biogenic Total	Biogenic Total[3]	
New York State[2]				**136,961,654**	**41,583,758**					
Coal				13,582,766						
Natural Gas				48,915,545						
Fuel Oil, Kerosene, etc.				2,004,975						
Landfill				NA						
Nuclear				41,869,535						
Hydro				25,471,697						
Other renewables				4,814,548						
Finger Lakes: Total				**13,306,437**	**3,422,712**	**7,784**	**17,009**	**3,447,505**	**169,315**	**9.715%** Generation in NYS
Genesee				57,533	34,291	14	20	34,324	-	
Livingston				-	-	-	-	-	-	
Monroe				526,735	1,017,347	2,374	5,146	1,024,867	56,563	
Ontario				-	-	-	-	-	-	
Orleans				74,670	-	37	108	146	28,867	
Seneca				139,808	-	108	315	423	-	
Wayne				4,948,363	-	-	-	-	-	
Wyoming				695,869	-	-	-	-	-	
Yates				558,997	576,682	1,360	2,920	580,962	-	
Finger Lakes: Renewable Energy Total				**1,024,551**	**-**	**219**	**635**	**854**	**169,315**	
Coal	**313,708**	**short tons**	**15,706,588**	**912,841**	**1,523,853**	**3,628**	**7,790**	**1,535,272**	**-**	
Genesee	-		-	-	-	-	-	-		
Livingston	-		-	-	-	-	-	-		
Monroe	79,849		9,829,896	368,866	953,697	2,271	4,876	960,843		
Ontario	-		-	-	-	-	-	-		
Orleans	-		-	-	-	-	-	-		
Seneca	-		-	-	-	-	-	-		
Wayne	-		-	-	-	-	-	-		
Wyoming	-		-	-	-	-	-	-		
Yates	233,859		5,876,692	543,975	570,157	1,358	2,915	574,429		
Distillate Fuel Oil (#1, 2, or 4)	**2,564**	**barrels**	**30,014**	**1,656**	**2,220**	**2**	**6**	**2,227**	**-**	
Genesee	-		36	-	3	0	0	3		
Livingston	-		-	-	-	-	-	-		
Monroe	1,172		21,918	822	1,621	1	4	1,627		
Ontario	-		-	-	-	-	-	-		
Orleans	-		-	-	-	-	-	-		
Seneca	-		-	-	-	-	-	-		
Wayne	-		-	-	-	-	-	-		
Wyoming	411		2,390	306	177	0	0	177		
Yates	981		5,670	527	419	0	1	421		
Landfill Gas[3]	**5,910,789**	**mcf**	**3,251,672**	**273,107**	**-**	**219**	**635**	**854**	**169,315**	
Genesee	-		-	-	-	-	-	-		
Livingston	-		-	-	-	-	-	-		
Monroe	1,984,751		1,086,281	88,109	-	73	212	285	56,563	
Ontario	1,028,564		554,396	45,190	-	37	108	146	28,867	
Orleans	-		-	-	-	-	-	-		
Seneca	2,897,474		1,610,995	139,808	-	108	315	423	83,885	
Wayne	-		-	-	-	-	-	-		
Wyoming	-		-	-	-	-	-	-		
Yates	-		-	-	-	-	-	-		
Natural Gas	**703,196**	**mcf**	**1,751,439**	**109,906**	**92,861**	**37**	**54**	**92,952**	**-**	
Genesee	360,980		646,698	57,533	34,288	14	20	34,322		
Livingston	-		-	-	-	-	-	-		
Monroe	232,039		992,917	38,184	52,644	21	31	52,696		
Ontario	-		-	-	-	-	-	-		
Orleans	-		-	-	-	-	-	-		
Seneca	-		-	-	-	-	-	-		
Wayne	-		-	-	-	-	-	-		
Wyoming	110,177		111,824	14,189	5,929	2	3	5,935		
Yates	-		-	-	-	-	-	-		
Nuclear	**0**	**short tons**	**51,754,929**	**4,948,363**	**-**	**-**	**-**	**-**	**-**	
Genesee	-		-	-	-	-	-	-		
Livingston	-		-	-	-	-	-	-		
Monroe	-		-	-	-	-	-	-		
Ontario	-		-	-	-	-	-	-		
Orleans	-		-	-	-	-	-	-		
Seneca	-		-	-	-	-	-	-		
Wayne	-		51,754,929	4,948,363	-	-	-	-		
Wyoming	-		-	-	-	-	-	-		
Yates	-		-	-	-	-	-	-		
Residual Fuel Oil	**4,055**	**short tons**	**124,973**	**4,659**	**9,385**	**8**	**23**	**9,417**	**-**	
Genesee	-		-	-	-	-	-	-		
Livingston	-		-	-	-	-	-	-		
Monroe	4,055		124,973	4,659	9,385	8	23	9,417		
Ontario	-		-	-	-	-	-	-		
Orleans	-		-	-	-	-	-	-		
Seneca	-		-	-	-	-	-	-		
Wayne	-		-	-	-	-	-	-		

Wyoming		-	-	-	-	-	-	-	
Yates		-	-	-	-	-	-	-	
Hydro[4]	**0**	**0**	**542,190**	**55,575**	**-**	**-**	**-**	**-**	**-**
Genesee		-	-	-	-	-	-	-	
Livingston		-	-	-	-	-	-	-	
Monroe		-	339,986	34,849	-	-	-	-	
Ontario		-	-	-	-	-	-	-	
Orleans		-	202,204	20,726	-	-	-	-	
Seneca		-	-	-	-	-	-	-	
Wayne		-	-	-	-	-	-	-	
Wyoming		-	-	-	-	-	-	-	
Yates		-	-	-	-	-	-	-	
Wind[4]	**0**	**0**	**6,788,901**	**695,869**	**-**	**-**	**-**	**-**	**-**
Genesee		-	-	-	-	-	-	-	
Livingston		-	-	-	-	-	-	-	
Monroe		-	-	-	-	-	-	-	
Ontario		-	-	-	-	-	-	-	
Orleans		-	-	-	-	-	-	-	
Seneca		-	-	-	-	-	-	-	
Wayne		-	-	-	-	-	-	-	
Wyoming		-	6,788,901	695,869	-	-	-	-	
Yates		-	-	-	-	-	-	-	

Notes

1. CO2e calculated based on regional electricity generation data from 2010 EIA Form 923 reported energy use by facility, using fuel type emission factors from EPA's Manditory Reporting Rule(MRR)*

*Federal Register / Vol. 74, No. 209 / Friday, October 30, 2009 / Rules and Regulations, Table C-1 and Table C-2, http://epa.gov/climatechange/emissions/downloads09/GHG-MRR-FinalRule.pdf

2. New York State Energy Generated and CO2e Emission Totals from EIA New York http://www.eia.gov/electricity/state/newyork/

3. CO2 from landfill gas are considered a source of biogenic (renewable) emissions, not to be included in GHG emission totals:

**Table B2, "Methodology for Allocating Municipal Solid Waste to Biogenic/Non-Biogenic Energy" http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html

4. Renewable sources highlighted in green

GHG Emissions from Natural Gas Electricity Generation Transmission and Distribution Losses[1]

	% T&D Loss	Total Natural Gas (mcf)	CH4 Losses in mcf	CH4 Losses in lbs	Total CO2e
Natural Gas T&D Losses	1.8%	703,196	12,658	567,057.25	5,401
Genesee	1.8%	360,980	6,498	291,094.27	2,773
Livingston	1.8%	-	-	-	-
Monroe	1.8%	232,039	4,177	187,116.25	1,782
Ontario	1.8%	-	-	-	-
Orleans	1.8%	-	-	-	-
Seneca	1.8%	-	-	-	-
Wayne	1.8%	-	-	-	-
Wyoming	1.8%	110,177	1,983	88,846.73	846
Yates	1.8%	-	-	-	-

Notes

1. CO2e from T&D losses calculated based on ratio of estimated % fuel loss and total CO2e estimated from natural gas use for electricity generation within the region.

Supporting data and calculations are provided in the following E&E Excel Workbook:
File Name:
FL Elec Generation GHG Analysis 1_14_13.xlsx
Date:
1/14/2013

Residential Building Emissions from Stationary Combustion

			CO2e (Metric Tons)[1]				
	# Households[2]	mmBTU[2]	CO2	CH4	N2O	Total	Biogenic Total[3]
New York State	**7,317,755**	**595,650,000**	**31,788,580**	**50,832**	**103,983**	**31,943,395**	**4,633,720**
Natural Gas	3,972,785	399,700,000	21,192,094	8,394	12,391	21,212,878	
Bottled, Tank, or LP gas	225,680	22,200,000	1,398,156	1,399	4,129	1,403,684	
Fuel Oil, Kerosene, etc.	2,207,233	124,300,000	9,193,228	7,831	23,120	9,224,179	
Wood	138,599	49,400,000	-	33,197	64,319	97,516	4,633,720
Coal	19,542	50,000	5,102	12	25	5,138	
% Finger Lakes	**6.6%**	**9.7%**	**9.0%**	**9.8%**	**9.2%**	**9.0%**	
Finger Lakes	**482,693**	**57,823,387**	**2,875,751**	**4,959**	**9,554**	**2,890,264**	**502,028**
Natural Gas	339,434	46,303,439	2,455,008	972	1,435	2,457,416	
Bottled, Tank, or LP gas	28,481	3,247,626	204,535	205	604	205,344	
Fuel Oil, Kerosene, etc.	35,486	2,912,087	215,378	183	542	216,103	
Wood	14,648	5,352,108	-	3,597	6,968	10,565	502,028
Coal	2,704	8,126	829	2	4	835	
Genesee County	**23,728**	**2,888,698**	**140,469**	**353**	**703**	**141,525**	**38,518**
Natural Gas	13,816	1,890,192	100,218	40	59	100,316	
Bottled, Tank, or LP gas	2,634	295,220	18,593	19	55	18,666	
Fuel Oil, Kerosene, etc.	3,601	292,139	21,607	18	54	21,679	
Wood	1,147	410,640	-	276	535	811	38,518
Coal	184	507	52	0	0	52	
Livingston County	**24,409**	**3,036,410**	**128,764**	**595**	**1,176**	**130,535**	**72,693**
Natural Gas	11,805	1,638,642	86,881	34	51	86,966	
Bottled, Tank, or LP gas	3,362	382,302	24,077	24	71	24,173	
Fuel Oil, Kerosene, etc.	2,913	239,781	17,734	15	45	17,794	
Wood	2,134	774,980	-	521	1,009	1,530	72,693
Coal	253	707	72	0	0	73	
Monroe County	**300,422**	**35,307,529**	**1,858,046**	**1,241**	**2,166**	**1,861,453**	**63,906**
Natural Gas	246,211	33,301,091	1,765,624	699	1,032	1,767,355	
Bottled, Tank, or LP gas	4,598	509,489	32,088	32	95	32,214	
Fuel Oil, Kerosene, etc.	10,166	815,296	60,299	51	152	60,502	
Wood	1,926	681,303	-	458	887	1,345	63,906
Coal	128	350	36	0	0	36	
Ontario County	**43,019**	**5,174,162**	**249,481**	**618**	**1,223**	**251,322**	**67,876**
Natural Gas	25,512	3,534,230	187,385	74	110	187,569	
Bottled, Tank, or LP gas	4,582	520,078	32,755	33	97	32,884	
Fuel Oil, Kerosene, etc.	4,808	394,945	29,210	25	73	29,308	
Wood	1,997	723,622	-	486	942	1,428	67,876
Coal	460	1,286	131	0	1	132	
Orleans County	**16,119**	**2,026,486**	**88,229**	**409**	**820**	**89,457**	**49,257**
Natural Gas	6,677	925,549	49,073	19	29	49,121	
Bottled, Tank, or LP gas	2,756	313,012	19,714	20	58	19,791	
Fuel Oil, Kerosene, etc.	3,195	262,595	19,422	17	49	19,487	
Wood	1,448	525,124	-	353	684	1,037	49,257
Coal	73	204	21	0	0	21	
Seneca County	**13,393**	**1,498,943**	**74,657**	**192**	**394**	**75,244**	**20,277**
Natural Gas	5,836	815,314	43,228	17	25	43,270	
Bottled, Tank, or LP gas	2,554	292,334	18,411	18	54	18,484	
Fuel Oil, Kerosene, etc.	2,086	172,791	12,780	11	32	12,823	
Wood	591	216,169	-	145	281	427	20,277
Coal	829	2,335	238	1	1	240	
Wayne County	**36,585**	**4,519,734**	**208,461**	**692**	**1,372**	**210,524**	**80,378**
Natural Gas	19,496	2,742,466	145,406	58	85	145,548	
Bottled, Tank, or LP gas	3,978	458,420	28,871	29	85	28,985	
Fuel Oil, Kerosene, etc.	5,530	461,287	34,117	29	86	34,232	
Wood	2,329	856,904	-	576	1,116	1,692	80,378
Coal	232	657	67	0	0	67	
Wyoming County	**15,501**	**2,103,566**	**79,109**	**521**	**1,022**	**80,652**	**66,582**
Natural Gas	7,260	1,045,955	55,457	22	32	55,511	
Bottled, Tank, or LP gas	1,626	191,943	12,089	12	36	12,136	
Fuel Oil, Kerosene, etc.	1,808	154,466	11,424	10	29	11,463	
Wood	1,883	709,832	-	477	924	1,401	66,582
Coal	472	1,370	140	0	1	141	
Yates County	**9,517**	**1,267,859**	**48,535**	**339**	**679**	**49,552**	**42,542**
Natural Gas	2,821	410,000	21,738	9	13	21,760	
Bottled, Tank, or LP gas	2,392	284,826	17,938	18	53	18,009	
Fuel Oil, Kerosene, etc.	1,378	118,788	8,786	7	22	8,815	
Wood	1,193	453,534	-	305	591	895	42,542
Coal	73	710	72	0	0	73	

Notes:

1. CO2e calculated based on allocation of EIA 2010 Residential Energy use in New York*, using fuel type emission factors from EPA's Manditory Reporting Rule(MRR)**

*http://www.eia.gov/state/seds/sep_sum/html/pdf/sum_btu_com.pdf

**Federal Register / Vol. 74, No. 209 / Friday, October 30, 2009 / Rules and Regulations, Table C-1 and Table C-2, http://epa.gov/climatechange/emissions/downloads09/GHG-MRR-FinalRule.pdf

2. New York State, regional and county residential energy totals allocated based on 2007 - 2010 ACS data for type of residence and heating fuel type, 2010 US Census data used for total occupied units, and HDD determined based on NOAA New York State climate divisions. fuel use by structure size determined though EPA study provided to GHG Inventory Protocol group.

3. CO2 from Wood products are considered a source of biogenic emissions, not to be included in GHG emission totals

GHG Emissions from Natural Gas Use Transmission and Distribution Losses[1]

	% T&D Loss	Total Natural Gas (mcf)	CH4 Losses in mcf	CH4 Losses in lbs	Total CO2e
Natural Gas T&D Losses	**1.8%**	**45,042,256.11**	**810,761**	**36,322,075**	**345,984**
Genesee	1.8%	1,838,708.48	33,097	1,482,734.52	14,124
Livingston	1.8%	1,594,009.33	28,692	1,285,409.13	12,244
Monroe	1.8%	32,394,057.24	583,093	26,122,567.76	248,829
Ontario	1.8%	3,437,967.35	61,883	2,772,376.87	26,408
Orleans	1.8%	900,339.68	16,206	726,033.92	6,916
Seneca	1.8%	793,106.79	14,276	639,561.31	6,092
Wayne	1.8%	2,667,768.45	48,020	2,151,288.48	20,492
Wyoming	1.8%	1,017,465.83	18,314	820,484.45	7,815
Yates	1.8%	398,832.96	7,179	321,618.90	3,064

Notes

1. CO2e from T&D losses calculated based on ratio of estimated % fuel loss and total residential natural gas use within the region.

Supporting data and calculations are provided in the following E&E Excel Workbook:
File Name:
FL Residential Direct Energy Sources 1_3_13.xlsx
Date:
1/4/2013

Commercial Energy Use Emissions

				CO2e (Metric Tons)[1]				
	Workers[2]	Sq Footage[2]	mmBTU[1]	CO2	CH4	N2O	Total	Biogenic Total[3]
New York State	**6,618,037**	**6,018,827,593**	**431,800,000**	**24,923,838**	**21,323**	**46,590**	**24,991,751**	
Natural Gas	4,005,538	3,519,948,423	294,100,000	15,593,182	6,176	9,117	15,608,475	
Bottled, Tank, or LP gas	227,624	183,398,128	6,600,000	415,668	416	1,228	417,311	
Fuel Oil, Kerosene, etc.	2,225,226	2,200,987,287	120,400,000	8,904,784	7,585	22,394	8,934,764	
Wood3	139,846	97,326,344	10,600,000	-	7,123	13,801	20,924	994,280
Coal	19,802	17,167,411	100,000	10,204	23	50	10,277	
%	**6%**	**6%**	**8%**	**7%**	**7%**	**6%**	**7%**	
Finger Lakes	**384,093**	**366,488,593**	**33,910,696**	**1,785,808**	**1,578**	**2,942**	**1,790,328**	
Natural Gas	320,904	305,344,394	30,013,998	1,591,342	630	930	1,592,903	
Bottled, Tank, or LP gas	21,102	21,072,894	825,329	51,979	52	154	52,185	
Fuel Oil, Kerosene, etc.	27,841	27,460,747	1,909,428	141,221	120	355	141,697	
Wood3	10,561	10,577,475	1,149,538	-	772	1,497	2,269	107,827
Coal	3,685	2,033,084	12,404	1,266	3	6	1,275	
Genessee County	**16,610**	**18,025,185**	**1,545,875**	**81,730**	**113**	**227**	**82,071**	
Natural Gas	10,732	11,646,888	1,143,380	60,622	24	35	60,681	
Bottled, Tank, or LP gas	2,046	2,220,251	86,556	5,451	5	16	5,473	
Fuel Oil, Kerosene, etc.	2,797	3,035,768	210,395	15,561	13	39	15,613	
Wood3	891	967,221	104,604	-	70	136	206	9,812
Coal	143	155,057	939	96	0	0	97	
Livingston County	**13,681**	**14,449,170**	**1,228,195**	**60,397**	**143**	**284**	**60,824**	
Natural Gas	7,891	8,334,214	825,521	43,769	17	26	43,812	
Bottled, Tank, or LP gas	2,247	2,373,224	93,350	5,879	6	17	5,902	
Fuel Oil, Kerosene, etc.	1,947	2,056,699	143,821	10,637	9	27	10,673	
Wood3	1,427	1,506,718	164,413	-	110	214	325	15,422
Coal	169	178,314	1,090	111	0	1	112	
Monroe County	**271,326**	**252,527,276**	**24,254,832**	**1,291,306**	**675**	**1,138**	**1,293,119**	
Natural Gas	253,978	236,381,368	23,205,657	1,230,364	487	719	1,231,571	
Bottled, Tank, or LP gas	4,743	4,414,095	172,082	10,838	11	32	10,881	
Fuel Oil, Kerosene, etc.	10,486	9,759,913	676,416	50,028	43	126	50,196	
Wood3	1,986	1,848,655	199,930	-	134	260	395	18,753
Coal	132	123,244	747	76	0	0	77	
Ontario County	**34,524**	**36,566,189**	**3,194,864**	**166,868**	**228**	**450**	**167,545**	
Natural Gas	23,576	24,970,360	2,473,364	131,138	52	77	131,266	
Bottled, Tank, or LP gas	4,234	4,484,879	176,412	11,110	11	33	11,154	
Fuel Oil, Kerosene, etc.	4,443	4,705,889	329,073	24,338	21	61	24,420	
Wood3	1,845	1,954,353	213,260	-	143	278	421	20,004
Coal	426	450,708	2,755	281	1	1	283	
Orleans County	**7,722**	**7,235,274**	**583,665**	**29,629**	**72**	**146**	**29,847**	
Natural Gas	3,644	3,414,335	335,187	17,772	7	10	17,789	
Bottled, Tank, or LP gas	1,504	1,409,354	54,943	3,460	3	10	3,474	
Fuel Oil, Kerosene, etc.	1,744	1,633,688	113,224	8,374	7	21	8,402	
Wood3	790	740,508	80,085	-	54	104	158	7,512
Coal	40	37,389	227	23	0	0	23	
Seneca County	**7,785**	**7,321,173**	**550,175**	**29,713**	**44**	**92**	**29,850**	
Natural Gas	3,819	3,591,519	355,747	18,862	7	11	18,880	
Bottled, Tank, or LP gas	1,671	1,571,756	61,825	3,894	4	11	3,909	
Fuel Oil, Kerosene, etc.	1,365	1,283,663	89,764	6,639	6	17	6,661	
Wood3	387	364,005	39,720	-	27	52	78	3,726
Coal	543	510,230	3,119	318	1	2	321	
Wayne County	**18,554**	**17,092,694**	**1,465,102**	**75,669**	**132**	**264**	**76,065**	
Natural Gas	10,767	10,557,540	1,036,438	54,952	22	32	55,006	
Bottled, Tank, or LP gas	2,197	2,153,957	83,971	5,289	5	16	5,309	
Fuel Oil, Kerosene, etc.	3,054	2,994,804	207,556	15,351	13	39	15,403	
Wood3	1,286	1,260,999	136,376	-	92	178	269	12,792
Coal	1,251	125,394	760	78	0	0	78	
Wyoming County	**9,112**	**8,706,196**	**745,840**	**34,560**	**111**	**218**	**34,889**	
Natural Gas	4,887	4,843,636	479,772	25,438	10	15	25,462	
Bottled, Tank, or LP gas	1,094	1,084,882	42,674	2,688	3	8	2,698	
Fuel Oil, Kerosene, etc.	1,217	1,206,329	84,356	6,239	5	16	6,260	
Wood3	1,268	1,256,536	137,114	-	92	179	271	12,861
Coal	646	314,813	1,924	196	0	1	198	
Yates County	**4,779**	**4,565,437**	**342,149**	**15,938**	**60**	**122**	**16,120**	
Natural Gas	1,610	1,604,535	158,932	8,427	3	5	8,435	
Bottled, Tank, or LP gas	1,365	1,360,494	53,515	3,370	3	10	3,384	
Fuel Oil, Kerosene, etc.	787	783,994	54,823	4,055	3	10	4,068	
Wood3	681	678,479	74,036	-	50	96	146	6,945
Coal	336	137,936	843	86	0	0	87	

Notes:

1. CO2e calculated based on allocation of EIA 2010 Commercial Energy use in New York*, using fuel type emission factors from EPA's Manditory Reporting Rule(MRR)**

*http://www.eia.gov/state/seds/sep_sum/html/pdf/sum_btu_com.pdf

*Federal Register / Vol. 74, No. 209 / Friday, October 30, 2009 / Rules and Regulations, Table C-1 and Table C-2, http://epa.gov/climatechange/emissions/downloads09/GHG-MRR-FinalRule.pdf

2. New York State, regional and county commercial energy totals allocated based on NYS 2010 Department of Labor statistics for each county, the CBECS average floor space per worker, and 2010 HDD based on NOAA climate divisions

3. CO2 from Wood products are considered a source of biogenic emissions, not to be included in GHG emission totals
4. Renewable sources highlighted in green

GHG Emissions from Natural Gas Use Transmission and Distribution Losses[1]

	% T&D Loss	Total Natural Gas (mcf)	CH4 Losses in mcf	CH4 Losses in lbs	Total CO2e
Natural Gas T&D Losses	**1.8%**	**29,196,495.67**	**525,537**	**23,544,054.11**	**224,268**
Genesee	1.8%	1,112,237.15	20,020	896,908.04	8,543
Livingston	1.8%	803,035.61	14,455	647,567.92	6,168
Monroe	1.8%	22,573,596.15	406,325	18,203,347.93	173,395
Ontario	1.8%	2,405,996.38	43,308	1,940,195.48	18,481
Orleans	1.8%	326,057.04	5,869	262,932.40	2,505
Seneca	1.8%	346,057.51	6,229	279,060.78	2,658
Wayne	1.8%	1,008,208.23	18,148	813,019.12	7,744
Wyoming	1.8%	466,704.13	8,401	376,350.21	3,585
Yates	1.8%	154,603.47	2,783	124,672.24	1,188

Notes
1. CO2e from T&D losses calculated based on ratio of estimated % fuel loss and total commercial natural gas use within the region.

Supporting data and calculations are provided in the following E&E Excel Workbook:
File Name:
WNY Commercial Energy Emissions 1_4_13.xlsx
Date:
1/4/2013

Industrial Energy Use Emissions

		CO2e (Metric Tons)[1]				
	mmBTU[2]	CO_2	CH_4	N_2O	Total	Biogenic Total[3]
New York State[2]	**142,674,216**	**8,707,842**	**14,208**	**28,311**	**8,750,361**	**219,731**
Natural Gas	100,184,192	5,311,766	2,104	3,106	5,316,975	
LPG	381,677	24,038	24	71	24,133	
Distillate Fuel Oil (#1, #2, Kerosene)	2,866,662	211,235	181	533	211,949	
Heating Oil #1	*1,103,236*	*80,812*	*70*	*205*	*81,087*	
Heating Oil #2	*1,763,426*	*130,423*	*111*	*328*	*130,862*	
Residual Fuel Oil (#4 and #6)	14,565,792	1,093,813	918	2,709	1,097,440	
Heating Oil #4	*1,300,971*	*97,625*	*82*	*242*	*97,949*	
Heating Oil #6	*13,264,821*	*996,188*	*836*	*2,467*	*999,491*	
Coal	12,699,950	1,193,241	2,934	6,299	1,202,474	
Bituminous Coal	*11,911,597*	*1,112,543*	*2,752*	*5,908*	*1,121,203*	
Anthracite Coal	*169,701*	*17,571*	*39*	*84*	*17,694*	
Coke	*618,652*	*63,127*	*143*	*307*	*63,577*	
Wood[3]	2,342,544	-	1,574	3,050	4,624	219,731
MSW[5]	9,633,400	873,749	6,474	12,543	892,766	
Solid Other						
Liquid Other						
%	**5%**	**6%**	**4%**	**4%**	**6%**	
Finger Lakes	**7,545,399**	**487,927**	**603**	**1,229**	**489,759**	**-**
Natural Gas	5,289,881	280,470	111	164	280,745	
LPG	2,459	155	0	0	156	
Distillate Fuel Oil (#1, #2, Kerosene)	12,484	923	1	2	926	
Heating Oil #1	-	-	-	-	-	
Heating Oil #2	*12,484*	*923*	*1*	*2*	*926*	
Residual Fuel Oil (#4 and #6)	157,965	11,863	10	29	11,903	
Heating Oil #4	-	-	-	-	-	
Heating Oil #6	*157,965*	*11,863*	*10*	*29*	*11,903*	
Coal	2,082,610	194,516	481	1,033	196,030	
Bituminous Coal	*2,082,610*	*194,516*	*481*	*1,033*	*196,030*	
Anthracite Coal	-	-	-	-	-	
Coke	-	-	-	-	-	
Wood[3]	-	-	-	-	-	-
MSW	-	-	-	-	-	
Solid Other						
Liquid Other						
Genesee County	**757,926**	**40,185**	**16**	**23**	**40,225**	
Natural Gas	757,926	40,185	16	23	40,225	
LPG	-	-	-	-	-	
Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-	-	
Heating Oil #1	-	-	-	-	-	
Heating Oil #2	-	-	-	-	-	
Residual Fuel Oil (#4 and #6)	-	-	-	-	-	
Heating Oil #4	-	-	-	-	-	
Heating Oil #6	-	-	-	-	-	
Coal	-	-	-	-	-	
Bituminous Coal	-	-	-	-	-	
Anthracite Coal	-	-	-	-	-	
Coke	-	-	-	-	-	
Wood[3]	-	-	-	-	-	
MSW	-	-	-	-	-	

Solid Other					
Liquid Other					
Livingston County	**172,960**	**9,177**	**4**	**5**	**9,186**
Natural Gas	172,326	9,137	4	5	9,146
LPG	634	40	0	0	40
Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-	-
Heating Oil #1	-	-	-	-	-
Heating Oil #2	-	-	-	-	-
Residual Fuel Oil (#4 and #6)	-	-	-	-	-
Heating Oil #4	-	-	-	-	-
Heating Oil #6	-	-	-	-	-
Coal	-	-	-	-	-
Bituminous Coal	-	-	-	-	-
Anthracite Coal	-	-	-	-	-
Coke	-	-	-	-	-
Wood[3]	-	-	-	-	-
MSW	-	-	-	-	-
Solid Other					
Liquid Other					
Monroe County	**2,747,714**	**189,445**	**273**	**572**	**190,291**
Natural Gas	1,586,308	84,106	33	49	84,189
LPG	85	5	0	0	5
Distillate Fuel Oil (#1, #2, Kerosene)	12,484	923	1	2	926
Heating Oil #1	-	-	-	-	-
Heating Oil #2	*12,484*	*923*	*1*	*2*	*926*
Residual Fuel Oil (#4 and #6)	157,965	11,863	10	29	11,903
Heating Oil #4	-	-	-	-	-
Heating Oil #6	*157,965*	*11,863*	*10*	*29*	*11,903*
Coal	990,874	92,548	229	491	93,268
Bituminous Coal	*990,874*	*92,548*	*229*	*491*	*93,268*
Anthracite Coal	-	-	-	-	-
Coke	-	-	-	-	-
Wood[3]	-	-	-	-	-
MSW	-	-	-	-	-
Solid Other					
Liquid Other					
Ontario County	**2,278,588**	**120,828**	**48**	**71**	**120,947**
Natural Gas	2,276,846	120,718	48	71	120,837
LPG	1,741	110	0	0	110
Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-	-
Heating Oil #1	-	-	-	-	-
Heating Oil #2	-	-	-	-	-
Residual Fuel Oil (#4 and #6)	-	-	-	-	-
Heating Oil #4	-	-	-	-	-
Heating Oil #6	-	-	-	-	-
Coal	-	-	-	-	-
Bituminous Coal	-	-	-	-	-
Anthracite Coal	-	-	-	-	-
Coke	-	-	-	-	-
Wood[3]	-	-	-	-	-
MSW	-	-	-	-	-
Solid Other					
Liquid Other					
Orleans County	**150,951**	**8,003**	**3**	**5**	**8,011**
Natural Gas	150,951	8,003	3	5	8,011

LPG	-	-	-	-	-	
Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-	-	
Heating Oil #1	-	-	-	-	-	
Heating Oil #2	-	-	-	-	-	
Residual Fuel Oil (#4 and #6)	-	-	-	-	-	
Heating Oil #4	-	-	-	-	-	
Heating Oil #6	-	-	-	-	-	
Coal	-	-	-	-	-	
Bituminous Coal	-	-	-	-	-	
Anthracite Coal	-	-	-	-	-	
Coke	-	-	-	-	-	
Wood[3]	-	-	-	-	-	-
MSW	-	-	-	-	-	
Solid Other						
Liquid Other						
Seneca County	**-**	**-**	**-**	**-**	**-**	
Natural Gas	-	-	-	-	-	
LPG	-	-	-	-	-	
Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-	-	
Heating Oil #1	-	-	-	-	-	
Heating Oil #2	-	-	-	-	-	
Residual Fuel Oil (#4 and #6)	-	-	-	-	-	
Heating Oil #4	-	-	-	-	-	
Heating Oil #6	-	-	-	-	-	
Coal	-	-	-	-	-	
Bituminous Coal	-	-	-	-	-	
Anthracite Coal	-	-	-	-	-	
Coke	-	-	-	-	-	
Wood[3]	-	-	-	-	-	-
MSW	-	-	-	-	-	
Solid Other						
Liquid Other						
Wayne County	**180,517**	**9,571**	**4**	**6**	**9,580**	
Natural Gas	180,517	9,571	4	6	9,580	
LPG	-	-	-	-	-	
Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-	-	
Heating Oil #1	-	-	-	-	-	
Heating Oil #2	-	-	-	-	-	
Residual Fuel Oil (#4 and #6)	-	-	-	-	-	
Heating Oil #4	-	-	-	-	-	
Heating Oil #6	-	-	-	-	-	
Coal	-	-	-	-	-	
Bituminous Coal	-	-	-	-	-	
Anthracite Coal	-	-	-	-	-	
Coke	-	-	-	-	-	
Wood[3]	-	-	-	-	-	-
MSW	-	-	-	-	-	
Solid Other						
Liquid Other						
Wyoming County	**1,256,744**	**110,717**	**256**	**547**	**111,519**	
Natural Gas	165,008	8,749	3	5	8,757	
LPG	-	-	-	-	-	
Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-	-	
Heating Oil #1	-	-	-	-	-	
Heating Oil #2	-	-	-	-	-	

Residual Fuel Oil (#4 and #6)	-	-	-	-	-	
Heating Oil #4	-	-	-	-	-	
Heating Oil #6	-	-	-	-	-	
Coal	1,091,736	101,968	252	542	102,762	
Bituminous Coal	*1,091,736*	*101,968*	*252*	*542*	*102,762*	
Anthracite Coal	-	-	-	-	-	
Coke	-	-	-	-	-	
Wood[3]	-	-	-	-	-	-
MSW	-	-	-	-	-	
Solid Other						
Liquid Other						
Yates County	**-**	**-**	**-**	**-**	**-**	
Natural Gas	-	-	-	-	-	
LPG	-	-	-	-	-	
Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-	-	
Heating Oil #1	-	-	-	-	-	
Heating Oil #2	-	-	-	-	-	
Residual Fuel Oil (#4 and #6)	-	-	-	-	-	
Heating Oil #4	-	-	-	-	-	
Heating Oil #6	-	-	-	-	-	
Coal	-	-	-	-	-	
Bituminous Coal	-	-	-	-	-	
Anthracite Coal	-	-	-	-	-	
Coke	-	-	-	-	-	
Wood[3]	-	-	-	-	-	-
MSW	-	-	-	-	-	
Solid Other						
Liquid Other						

Notes

1. CO2e calculated based on regional Title V Air Quality Permitting energy data provided to the CGC GHG Protocol Working Group from the NYSDEC (August 2012), using fuel type emission factors from EPA's Manditory Reporting Rule(MRR)*

*Federal Register / Vol. 74, No. 209 / Friday, October 30, 2009 / Rules and Regulations, Table C-1 and Table C-2, http://epa.gov/climatechange/emissions/downloads09/GHG-MRR-FinalRule.pdf

2. New York State, regional and county actual energy totals reported for all Title V sources within the area. Electricity generation and landfill emissions were excluded as they are calculated and counted separately in waste and electric consumption and generation

3. CO2 from Wood products are considered a source of biogenic emissions, not to be included in GHG emission totals

4. Renewable sources highlighted in green

5. MSW(Municipal Solid Waste) emissions are included in waste calculations

GHG Emissions from Natural Gas Use Transmission and Distribution Losses[1]

	% T&D Loss	Total Natural Gas (mcf)	CH4 Losses in mcf	CH4 Losses in lbs	Total CO2e
Natural Gas T&D Losses	**1.8%**	**5,145,798.98**	**92,624**	**4,149,572.30**	**39,527**
Genesee	1.8%	737,281.61	13,271	594,543.89	5,663
Livingston	1.8%	167,632.68	3,017	135,179.00	1,288
Monroe	1.8%	1,543,100.88	27,776	1,244,356.55	11,853
Ontario	1.8%	2,214,830.98	39,867	1,786,039.70	17,013
Orleans	1.8%	146,839.49	2,643	118,411.37	1,128
Seneca	1.8%	-	-	-	-
Wayne	1.8%	175,599.71	3,161	141,603.60	1,349
Wyoming	1.8%	160,513.62	2,889	129,438.18	1,233
Yates	1.8%	-	-	-	-

Notes

1. CO2e from T&D losses calculated based on ratio of estimated % fuel loss and total industrial natural gas use within the region. Supporting data and calculations are provided in the following E&E Excel Workbook:

File Name:

FL Industrial Emissions 1-4-13.xlsx

Date:

1/4/2013

Industrial GHG Emissions

2010 Emissions reported as part of EPA MRR Program

Region	Source	Process	CO2e (Metric Tons) Emissions by Type[1] CO2	CH4	N2O	CF4	C2F6	CHF3	Total CO2e
New York State									
Finger Lakes									**37,292**
Genesee County	None								
Livingston County	None								
Monroe County	None								
Ontario County	GUARDIAN INDUSTRIES CORP	Glass Production	X	X	X				37,292
Orleans County	None								
Seneca County	None								
Wayne County	None								
Wyoming County	None								
Yates County	None								

Notes:

1. Emissions from industrial uses and general combustion are not reported separately by type, only total CO2e is reported separately.

Ozone Depleting Substance Substitution Emissions

Region	Population	HFC Emissions Total CO2e (Metric Tons)
New York State	**19,378,102**	**4,436,697**
Finger Lakes	**1,217,156**	**278,672.93**
Genesee County	60,079	13,755.34
Livingston County	65,393	14,972.00
Monroe County	744,344	170,420.65
Ontario County	107,931	24,711.25
Orleans County	42,883	9,818.24
Seneca County	35,251	8,070.86
Wayne County	93,772	21,469.49
Wyoming County	42,155	9,651.56
Yates County	25,348	5,803.53

Notes:

1. Emissions from HFC use estimated based on 2010 population ratio and 2007 Reported Statewide HFC emissions (New York State Greenhouse Gas Emissions Inventory

Supporting data and calculations are provided in the following E&E Excel Workbook:

File Name:

FL Industrial Sources11_10_12.xlsx

Date:

11/10/2012

Table 1
Greenhouse Gas Emission Inventory Summary
Transportation: On-Road Vehicles
Finger Lakes New York Region

County	Annual Vehicle Miles Travelled[1] (VMT)	Annual GHG Emissions[2] (metric tons CO2e/yr)			
		CO2	N2O	CH4	Total
Genesee	1,097,199,275	530,382	1,329	455	532,166
Livingston	786,257,742	386,095	967	331	387,393
Monroe	6,486,644,052	2,832,972	7,095	2,432	2,842,498
Ontario	1,424,348,585	658,566	1,616	565	660,747
Orleans	298,777,408	138,335	347	119	138,800
Seneca	461,842,036	218,810	548	188	219,546
Wayne	744,612,295	311,467	780	268	312,515
Wyoming	359,002,158	162,186	406	139	162,731
Yates	198,538,063	98,299	246	84	98,630
Finger Lakes NY Total	**11,857,221,614**	**5,337,111**	**13,334**	**4,580**	**5,355,025**

Notes:

1. VMT data for each county provided by NYSDOT.

2. NYSDOT regional-specific data on fleet profile and national fleet fuel economy data to estimate county-level GHG emissions.

Emission Type	Fuel Type	Finger Lakes NY Annual GHG Emissions[2] (metric tons CO2e/yr)
Non-Biogenic	Gasoline[1]	4,273,549
	Diesel	771,313
	Total	***5,044,862***
Biogenic	Ethanol[1]	310,163
TOTAL		**5,355,025**

Notes:

1. Non-biogenic Portion of Gasoline E-10. Biogenic portion is not included in GHG totals per NYSGHG Protocol

2. NYSDOT regional-specific data on fleet profile and national fleet fuel economy data to estimate GHG emissions. The distribution of GHG emissions for the components of gasoline E-10 (i.e., gasoline and ethanol) is based on a fraction of 90% gasoline and 10% ethanol.

County	Annual Fuel Consumption (MMBtu/yr)		
	Gasoline (E-10)	Diesel	Total
Genesee	6,125,147	1,366,032	7,491,180
Livingston	4,407,479	1,043,088	5,450,567
Monroe	35,371,200	4,780,696	40,151,896
Ontario	7,877,822	1,438,072	9,315,893
Orleans	1,658,969	298,095	1,957,064
Seneca	2,575,910	517,143	3,093,053
Wayne	4,055,928	442,298	4,498,226
Wyoming	1,997,798	360,648	2,358,446
Yates	1,102,252	284,413	1,386,665
Finger Lakes NY Total	**65,172,504**	**10,530,485**	**75,702,989**

Notes:

and national fleet fuel economy data.

Fuel Type	Finger Lakes NY GHG Emissions (metric tons CO_2e/yr)			
	CO_2	N_2O	CH_4	Total
Finger Lakes	**5,337,111**	**13,334**	**4,580**	**5,355,025**
Gasoline	4,258,449	11,280	3,821	4,273,549
Ethanol[1]	309,904	154	105	310,163
Diesel	768,758	1,899	655	771,313
Genesee	**530,382**	**1,329**	**455**	**532,166**
Gasoline	400,224	1,060	359	401,644
Ethanol[1]	29,126	15	10	29,150
Diesel	101,032	254	86	101,372
Livingston	**386,095**	**967**	**331**	**387,393**
Gasoline	287,990	763	258	289,011
Ethanol[1]	20,958	10	7	20,976
Diesel	77,147	194	66	77,407
Monroe	**2,832,972**	**7,095**	**2,432**	**2,842,498**
Gasoline	2,311,196	6,122	2,074	2,319,392
Ethanol[1]	168,195	84	57	168,335
Diesel	353,580	889	301	354,771
Ontario	**658,566**	**1,616**	**565**	**660,747**
Gasoline	514,746	1,363	462	516,572
Ethanol[1]	37,460	19	13	37,491
Diesel	106,360	234	91	106,684
Orleans	**138,335**	**347**	**119**	**138,800**
Gasoline	108,399	287	97	108,783
Ethanol[1]	7,889	4	3	7,895
Diesel	22,047	55	19	22,121
Seneca	**218,810**	**548**	**188**	**219,546**
Gasoline	168,313	446	151	168,910
Ethanol[1]	12,249	6	4	12,259
Diesel	38,248	96	33	38,377
Wayne	**311,467**	**780**	**268**	**312,515**
Gasoline	265,019	702	238	265,959
Ethanol[1]	19,286	10	7	19,303
Diesel	27,162	68	23	27,253
Wyoming	**162,186**	**406**	**139**	**162,731**
Gasoline	130,538	346	117	131,001
Ethanol[1]	9,500	5	3	9,508
Diesel	22,148	55	19	22,222
Yates	**98,299**	**246**	**84**	**98,630**
Gasoline	72,022	191	65	72,278
Ethanol[1]	5,241	3	2	5,246
Diesel	21,035	53	18	21,106

Notes:

1. Non-biogenic Portion of Gasoline E-10. Biogenic portion is not included in GHG totals per NYSGHG Protocol

2. NYSDOT regional-specific data on fleet profile and national fleet fuel economy data to estimate GHG emissions. The distribution of GHG emissions for the components of gasoline E-10 (i.e., gasoline and ethanol) is based on a fraction of 90% gasoline and 10% ethanol.

Supporting data and calculations are provided in the following E&E Excel Workbook:

File Name:

FL Transportation - Onroad - 2013_1_14.xlsm

Date:

1/14/2013

Table 1
GHG Emission Summary
Transportation: Railroads
Finger Lakes New York Region

County	Annual Diesel Consumption[1] (gal/yr)	Annual diesel Consuption (MMBtu/yr)	Direct GHG Emissions from Diesel Train Engine Systems[2] (metric tons CO_2e/yr)			
			CO_2	N_2O	CH_4	Total
Genesee	2,684,250	370,427	27,397	69	23	27,489
Livingston	263,433	36,354	2,689	7	2	2,698
Monroe	3,715,410	512,727	37,921	95	32	38,049
Ontario	101,171	13,962	1,033	3	0.9	1,036
Orleans	17,965	2,479	183	0.5	0.2	184
Seneca	58,215	8,034	594	1	0.5	596
Wayne	2,742,210	378,425	27,988	70	24	28,083
Wyoming	611,480	84,384	6,260	16	5	6,281
Yates	106,382	14,681	1,086	3	0.9	1,089
Finger Lakes NY Total	**10,300,516**	**1,421,471**	**105,151**	**264**	**90**	**105,505**

Notes:

1. Diesel consumption based on NYSERDA Study of diesel consumption by rail systems in New York State in 2002. Fuel consumption data allocated spatially to counties by location of rail lines.
2. GHG emissions calculated by applying EPA emission factors to diesel consumption.

County	Annual Coal Consumption[1] (short tons/yr)	Annual Coal Consumption[1] (MMBTu/yr)	Direct GHG Emissions from Coal Train Systems[2] (metric tons CO_2e/yr)			
			CO_2	N_2O	CH_4	Total
Wyoming	11	280	7	0.02	0.006	7
Finger Lakes NY Total	**11**	**280**	**7**	**0.02**	**0.006**	**7**

Notes:

1. Coal consumption estimated from train system use.
2. GHG emissions calculated by applying EPA emission factors to coal consumption.

County	GHG Emissions from All Train Systems (metric tons CO_2e/yr)			
	CO_2	N_2O	CH_4	Total
Genesee	27,397	69	23	27,489
Livingston	2,689	7	2	2,698
Monroe	37,921	95	32	38,049
Ontario	1,033	3	0.9	1,036
Orleans	183	0.5	0.2	184
Seneca	594	1	0.5	596
Wayne	27,988	70	24	28,083
Wyoming	6,267	16	5	6,288
Yates	1,086	3	0.9	1,089
Finger Lakes NY Total	**105,158**	**264**	**90**	**105,512**

Power/Fuel Type	Finger Lakes NY Annual Energy Consumption (MMBtu/yr)
Diesel	1,421,471
Coal	280
Electric	0
Total	**1,421,751**

Notes:

State in 2002.

2. Energy consumption for electrical systems calculated by unit conversion.

Supporting data and calculations are provided in the following E&E Excel Workbook:
File Name:
FL Transportation - Rail - 2013_1_3.xlsx
Date:
1/4/2013

Table 1
GHG Emission Summary
Transportation: Commercial Marine Vessels
Finger Lakes New York Region

Fuel Type	County	Annual Fuel Consumption[1] (gal/yr)	Annual Fuel Consumption[1] (MMBtu/yr)	GHG Emissions[2,3] (metric tons CO_2e/yr)			
				CO_2	N_2O	CH_4	Total
Diesel	Genesee	0	0	0	0	0	0
	Livingston	0	0	0	0	0	0
	Monroe	0	0	0	0	0	0
	Ontario	0	0	0	0	0	0
	Orleans	0	0	0	0	0	0
	Seneca	0	0	0	0	0	0
	Wayne	0	0	0	0	0	0
	Wyoming	0	0	0	0	0	0
	Yates	0	0	0	0	0	0
	Finger Lakes NY Total	**0**	**0**	**0**	**0**	**0**	**0**
Residual Fuel Oil	Genesee	0	0	0	0	0	0
	Livingston	0	0	0	0	0	0
	Monroe	818,129	122,719	9,216	23	8	9,247
	Ontario	0	0	0	0	0	0
	Orleans	635,878	95,382	7,163	18	6	7,187
	Seneca	0	0	0	0	0	0
	Wayne	0	0	0	0	0	0
	Wyoming	0	0	0	0	0	0
	Yates	0	0	0	0	0	0
	Finger Lakes NY Total	**1,454,007**	**218,101**	**16,379**	**41**	**14**	**16,434**
All Fuel Types	**Genesee**	**0**	**0**	**0**	**0**	**0**	**0**
	Livingston	**0**	**0**	**0**	**0**	**0**	**0**
	Monroe	**818,129**	**122,719**	**9,216**	**23**	**8**	**9,247**
	Ontario	**0**	**0**	**0**	**0**	**0**	**0**
	Orleans	**635,878**	**95,382**	**7,163**	**18**	**6**	**7,187**
	Seneca	**0**	**0**	**0**	**0**	**0**	**0**
	Wayne	**0**	**0**	**0**	**0**	**0**	**0**
	Wyoming	**0**	**0**	**0**	**0**	**0**	**0**
	Yates	**0**	**0**	**0**	**0**	**0**	**0**
	Finger Lakes NY Total	**1,454,007**	**218,101**	**16,379**	**41**	**14**	**16,434**

Notes:

1. Fuel consumption estimated by dividing annual CO_2 emissions by corresponding fuel heat value and emission-factor-energy.
2. CO_2 emissions calculated by multiplying EPA estimated annual SO_2 emission rate by ratio of CO_2 to SO_2 emissions for applicable fuel.
3. N_2O and CH_4 emissions estimated using using EPA emission factors and fuel consumption estimates.

Fuel Type	Finger Lakes NY Annual Energy Consumption[1] (MMBtu/yr)
Diesel	0
Residual Fuel Oil	218,101
Total	**218,101**

Notes:

1. Annual energy consumption is based on projected fuel consumption.

Supporting data and calculations are provided in the following E&E Excel Workbook:
File Name:
FL Transportation - Com Marine - 2013_1_3.xlsx
Date:
1/4/2013
11/10/2012

Table 1
Greenhouse Gas Emission Inventory Summary
Transportation: Aircraft
Finger Lakes New York Region

County	Annual Jet Fuel Consumption[1] (gal/yr)	Annual Jet Fuel Consumption[1] (MMBtu/yr)	GHG Emissions[2,3] (metric tons CO_2e/yr)			
			CO_2	N_2O	CH_4	Total
Genesee	193,221	26,085	1,854	4.9	2	1,860
Livingston	129,800	17,523	1,248	3	1	1,252
Monroe	4,286,001	578,610	41,151	108	36	41,295
Ontario	47,780	6,450	457	1	0.4	459
Orleans	14,459	1,952	138	0.4	0.1	138
Seneca	27,932	3,771	266	0.7	0.2	267
Wayne	54,549	7,364	524	1	0.5	526
Wyoming	35,818	4,835	342	0.9	0.3	343
Yates	101,868	13,752	978	3	0.9	981
Finger Lakes NY Total	**4,891,428**	**660,343**	**46,958**	**123**	**42**	**47,122**

Notes:

1. Jet fuel consumption estimated using the FAA's EDMS model with data input of total landing and take off cycles of specific aircraft types at each airport in each county.
2. CO_2 emissions estimated using the FAA's EDMS model with data input of total landing and take off cycles of specific aircraft types at each airport in each county.
3. N_2O and CH_4 emissions estimated using using EPA emission factors and jet fuel consumption estimates.

Fuel Type	Western NY Annual Energy Consumption[1] (MMBtu/yr)
Kerosene Type Jet Fuel	660,343

Notes:

1. Annual energy consumption is based on projected fuel consumption as estimated using FAA's EDMS model.

Supporting data and calculations are provided in the following E&E Excel Workbook:
File Name:
FL Transportation - Aircraft - 2013_1_3.xlsx
Date:
1/4/2013

Table 1
GHG Emissions Summary
Transportation: Non-Road Equipment
Finger Lakes New York Region

County	Energy Consumption (MMBtu/yr)	GHG Emissions[1,2] (metric tons CO_2e/yr)			
		CO_2	N_2O	CH_4	Total
Genesee	651,759	46,746	120	41	46,907
Livingston	624,813	44,944	116	39	45,099
Monroe	5,108,287	360,290	938	319	361,546
Ontario	1,105,904	79,050	204	69	79,324
Orleans	512,632	36,741	95	32	36,869
Seneca	779,111	55,695	145	49	55,889
Wayne	897,883	63,902	166	56	64,124
Wyoming	592,030	42,496	110	37	42,643
Yates	562,680	40,072	104	35	40,212
Finger Lakes NY Total	**10,835,100**	**769,937**	**1,998**	**678**	**772,613**

Notes:

1. CO_2 emissions based on NYSDEC runs of the NONROAD emission model for the state emission inventory for Year 2007.
2. N_2O and CH_4 emissions based the use of EPA emission factors for N2O and CH4 based on fuel combustion. Fuel consumption estimated with reserve application of CO_2 emission factors (for fuel) to CO_2 emissions.

Fuel Type	Finger Lakes NY Annual Fuel Consumption[1]		Finger Lakes NY GHG Emissions[2,3] (metric tons CO_2e/yr)			
	(scf/yr)	(gal/yr)	CO_2	N_2O	CH_4	Total
CNG	106,246,482	-	5,791	3	2	**5,797**
Diesel	-	39,738,943	405,595	1,020	345	**406,960**
Gasoline	-	31,398,706	*275,602*	*730*	*247*	**276,579**
LPG	-	14,315,938	82,949	245	83	**83,277**
TOTAL	-	-	**769,937**	**1,998**	**678**	**772,613**

Notes:

1. Fuel consumption estimated with reserve application of CO_2 emission factors (for fuel) to CO_2 emissions.
2. CO_2 emissions based on NYSDEC runs of the NONROAD emission model for the state emission inventory for Year 2007.
3. N_2O and CH_4 emissions based the use of EPA emission factors for N_2O and CH_4 based on fuel combustion.

Fuel Type	Finger Lakes NY Annual Energy Consumption (MMBtu/yr)
CNG	109,221
Diesel	5,483,974
Gasoline	3,924,838
LPG	1,317,066
Total	**10,835,100**

Notes:

1. Annual energy consumption is based on projected fuel consumption calculated from NYSDEC CO_2 emission estimates.

Supporting data and calculations are provided in the following E&E Excel Workbook:
File Name:
FL Transportation - Nonroad - 2013_1_3.xlsx
Date:
1/4/2013

Waste Disposal Emissions

				CO2e (Metric Tons), 2010[1,2]				
	Regional average Municipal Solid Waste (MSW) generated per capita (short tons)	Total MSW (Short tons)[1]	Population	Nonbiogenic CO2	CH_4	N_2O	Total non biogenic	CO2 biogenic[5]
Finger Lakes								
Direct Reported Emissions, waste received[2]		**3,089,899**	**1,217,156**	**934**	**595,749**	**1**	**596,684**	**81,792**
Genesee		729,041	60,079	738	283,012	1	283,751	81,792
Livingston		-	65,393	-	-	-	-	-
Monroe		-	744,344	-	-	-	-	-
Ontario		-	107,931	-	-	-	-	-
Orleans		742,837	42,883	191	134,598	-	134,789	-
Seneca		-	35,251	-	-	-	-	-
Wayne		1,618,021	93,772	5	178,139	-	178,143	-
Wyoming		-	42,155	-	-	-	-	-
Yates		-	25,348	-	-	-	-	-
Indirect Emissions, based on average emissions per ton received, waste generated[3]	**0.83**	**1,016,144**	**1,217,156**	**0**	**326,347**	**0**	**326,347**	**201,744**
Genesee[4]	0.49	29,280.68	60,079	0	9,404	0	9,404	9,958
Livingston[4]	0.56	36,441.50	65,393	0	11,704	0	11,704	10,839
Monroe[4]	0.87	647,758.26	744,344	0	208,035	0	208,035	123,375
Ontario[4]	1.07	115,586.13	107,931	0	37,122	0	37,122	17,890
Orleans[4]	0.50	21,593.23	42,883	0	6,935	0	6,935	7,108
Seneca[4]	0.60	21,095.33	35,251	0	6,775	0	6,775	5,843
Wayne[4]	1.16	108,416.99	93,772	0	34,819	0	34,819	15,543
Wyoming[4]	0.48	20,081.50	42,155	0	6,449	0	6,449	6,987
Yates[4]	0.63	15,890.04	25,348	0	5,103	0	5,103	4,201

Notes

1. 2010_DEC_Landfill_and_WTE_data.xlsx , summary of DEC reported data provided by NYSERDA to NYS Protocol Working Group, 2012
2. Emissions as reported in 2010 EPA MRR GHG Reporting Data
3. Emissions calculated using California Air Resources Board(CARB) First Order Decay (FOD) Model, based on total waste generated in the region, NY default waste characteristics, and 50 year lifespan
4. Regional Emissions allocated to counties based on waste generated within the county.
5. Biogenic emissions include CO2 emissions from electric generation as calculated by CARB FOD Model or as Reported for EPA MRR

Supporting data and calculations are provided in the following E&E Excel Workbook:
File Name:
FL Waste 1_4 BOD method.xlsx
Date:
1/4/2013

Wastewater Treatment Facility Emissions: Direct

				CO2e (Metric Tons)[2]			
	Wastewater volume flow (MGD)[1]	Number of Plants[1]	Population[2]	CO2	CH4	N2O	Total CO2e[3]
New York State[2]	**3,693.65**	**610**	**19,378,102**	**-**	**1,310,000**	**580,000**	**1,900,000**
Finger Lakes[2]	**232.36**	**66**	**1,217,156**	**-**	**80,000**	**40,000**	**120,000**
Genesee	9.02	9	60,079		3,107	1,553	4,660
Livingston	6.58	8	65,393		2,267	1,133	3,400
Monroe	166.86	7	744,344		57,450	28,725	86,175
Ontario	15.73	11	107,931		5,415	2,708	8,123
Orleans	12.900	4	42,883		4,441	2,221	6,662
Seneca	5.782	6	35,251		1,991	995	2,986
Wayne	9.309	15	93,772		3,205	1,603	4,808
Wyoming	4.070	4	42,155		1,401	701	2,102
Yates	2.100	2	25,348		723	362	1,085

[1]Descriptive Data of Municipal Wastewater Treatment Plants in New York State, NYSDEC, January 2004

[2]State and Regional Totals calculated using the EPA State Inventory Tool, Wastewater module, for Municiple waterwater only, using NYS defaults, 2010 population from 2010 US Census.

[3]State and Regional totals reported as calculated by using the EPA State Inventory Tool--may not be exact sum of other rows due to rounding.

[4]County totals calculated based on ratio of 2004 County wastewater volumes and EPA State Inventory Tool results for the region. Significant figures of SIT (million MT, to 100ths) do not provide totals for the smaller population numbers.

Supporting data and calculations are provided in the following E&E Excel Workbook:
File Name:
FL Waste_water11_12.xlsx
Date:
11/12/2012

Manure Management Emissions

			CO2e (Metric Tons) 2			
	Population (# of animals)[1]	Number of Animal Farms [1]	CO2	CH4	N2O	Total CO2e
New York State						
Finger Lakes	**560,273**	**5,752**		**114,656**	**22,994**	**137,649**
Genesee	59,539	458		17,777	3,701	21,478
Livingston	62,502	729		17,637	3,674	21,311
Monroe	12,813	246		1,816	334	2,150
Ontario	52,031	696		15,804	3,269	19,073
Orleans	12,997	376		2,192	407	2,599
Seneca	75,979	617		8,986	1,353	10,340
Wayne	124,995	557		6,125	1,149	7,275
Wyoming	109,501	944		34,551	7,221	41,772
Yates	49,916	1,129		9,766	1,885	11,651

Note

1. The animal and farm number data is from 2007 USDA Agricultural Census.

2.CO2e calculation is based on the animal number and the factors from 2010 USEPA Draft Regional Greenhouse Gas Inventory Guidance and 2006 IPCC Guidelines for National Greenouse Gas Inventories .

Enteric Fermentation Emissions

			CO2e (Metric Tons) 2			
	Population (# of animals)[1]	Number of Animal Farms [1]	CO2	CH4	N2O	Total CO2e
New York State						
Finger Lakes	**560,273**	**5,752**		**713,507**		**713,507**
Genesee	59,539	458		107,337		107,337
Livingston	62,502	729		105,152		105,152
Monroe	12,813	246		14,562		14,562
Ontario	52,031	696		97,147		97,147
Orleans	12,997	376		17,831		17,831
Seneca	75,979	617		64,553		64,553
Wayne	124,995	557		39,678		39,678
Wyoming	109,501	944		202,771		202,771
Yates	49,916	1,129		64,475		64,475

Notes

1. The animal and farm number data is from 2007 USDA Agricultural Census.

2.CO2e calculation is based on the animal number and the factors from 2010 USEPA Draft Regional Greenhouse Gas Inventory Guidance.

Agricultural Soils Emissions

		CO2e (Metric Tons) [2]			
	Cropland Harvested (acres)[1]	CO2	CH4	N2O	Total CO2e
New York State					
Finger Lakes	**1,012,623**			**61,934**	**61,934**
Genesee	132,333			8,082	8,082
Livingston	146,753			8,966	8,966
Monroe	93,282			5,697	5,697
Ontario	137,752			8,421	8,421
Orleans	91,599			5,616	5,616
Seneca	92,783			5,712	5,712
Wayne	103,564			6,333	6,333
Wyoming	142,442			8,699	8,699
Yates	72,115			4,407	4,407

Notes

1. The cropland harvested data for synthetic fertilizer calculation is from 2007 US Agricultural Census. Assumed most of fertilizer are used on harvested cropland.

2.CO2e calculation is from organic fertilizer N2O emission with data sources from NYSDEC7/23/2012 and synthetic fertilizer N2O emission with data sources from 2007 US Agricultural Census and EPA Commerical Fertilizer Purchased (http://water.epa.gov/scitech/swguidance/standards/criteria/nutrients/dataset_commercial.cfm).

Supporting data and calculations are provided in the following E&E Excel Workbook:
File Name:
FL_Agriculture_110512.xlsx
Date:
11/5/12

Carbon Sequestration in Forests

	Forest Land (Acres)[1]	Forest Land (km^2)	Total Carbon Sequestration (metric tons C)[2]	Total Carbon Sequestration (metric tons CO2)
New York State				
Finger Lakes	**1,050,475**	**4,251**	**47,169,176**	**173,110,876**
Genesee	107,901	437	5,046,674	18,521,295
Livingston	132,965	538	6,043,567	22,179,890
Monroe	116,967	473	5,313,551	19,500,731
Ontario	187,560	759	8,099,906	29,726,656
Orleans	62,351	252	2,816,615	10,336,977
Seneca	50,653	205	2,104,790	7,724,579
Wayne	136,240	551	5,512,768	20,231,860
Wyoming	157,285	637	7,889,264	28,953,598
Yates	98,553	399	4,342,041	15,935,289

Notes

1.The forest land data is from Forest Inventory Data Online (FIDO) FIA Standard Reports, New York Current Area, 2010.
2.The total carbon sequestration is calculated based on the carbon stock factor from COLE 1605 (b) Report for New York, July 24, 2012 and the forest land.

Carbon Sequestration in Urban Forests

	Urban Land Area (km2) [1]	Tree Canopy Cover (%)[2]	Total Carbon Sequestration (metric tons C)[3]	Total Carbon Sequestration (metric tons CO2)
New York State				
Finger Lakes	**1,079**		**68,447**	**251,202**
Genesee	35	23%	1,759	6,456
Livingston	48	23%	2,463	9,040
Monroe	741	31%	50,341	184,750
Ontario	83	15%	2,823	10,361
Orleans	31	30%	2,092	7,679
Seneca	23	25%	1,309	4,805
Wayne	78	30%	5,223	19,169
Wyoming	33	29%	2,173	7,974
Yates	7	18%	264	969

Notes
1. The urban land area data is from 2000 US Census.
2. The tree canopy cover percentage data is from provided by Eric J. Greenfield, US Department of Agriculture Forest Service, Syracuse, NY on August 1, 2012.
3. The total carbon sequestration is calculated based on the urban land area, tree canopy coverage and the national average net sequestration rate.

Supporting data and calculations are provided in the following E&E Excel Workbook:
File Name:
FL_Forest_101012.xlsx
Date:
10/10/12

REDC Emissions By Source and Sector
Year: 2010

REDC / County Name	QAQC

Color Code

	REQUIRED, though some data may be zero or considered to small to count
	OPTIONAL
	DO NOT Report Data in these cells

DRAFT Reporting Template CGC. Emissions in MTCDE							Related GHG Metrics / Activity Data		
		Scope 1	Scope 2	Scope 3	Biogenic	Rolled Up?	Metric	Unit	Value
Built Environment	**Residential Energy Consumption**								
FL Electricity Consumption	Electricity / Steam	-	1,003,997	0	-	Yes	Consumption	MMBTU	15,093,554
FL Direct Residental Fuel Consumption	Natural Gas	2,457,416	-	0	-	Yes	Consumption	MMBTU	46,303,439
FL Direct Residental Fuel Consumption	Propane / LPG	205,344	-	0	-	Yes	Consumption	MMBTU	3,247,626
FL Direct Residental Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	216,103	-	0	-	Yes	Consumption	MMBTU	2,912,087
FL Direct Residental Fuel Consumption	Wood	10,565	-	0	502,028	Yes	Consumption	MMBTU	5,352,108
	Commercial Energy Consumption	-	-	0	-				-
FL Electricity Consumption	Electricity / Steam	-	964,950	0	-	Yes	Consumption	MMBTU	14,506,538
FL Commercial Direct Fuel Consumption	Natural Gas	1,592,903	-	0	-	Yes	Consumption	MMBTU	30,013,998
FL Commercial Direct Fuel Consumption	Propane / LPG	52,185	-	0	-	Yes	Consumption	MMBTU	825,329
FL Commercial Direct Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	141,697	-	0	-	Yes	Consumption	MMBTU	1,909,428
FL Commercial Direct Fuel Consumption	Residual Fuel Oil (#4 and #6)	-	-	0	-	Yes	Consumption	MMBTU	-
FL Commercial Direct Fuel Consumption	Coal	1,275	-	0	-	Yes	Consumption	MMBTU	12,404
FL Commercial Direct Fuel Consumption	Wood	2,269	-	0	107,827	Yes	Consumption	MMBTU	1,149,538
	Industrial Energy Consumption	-	-	0	-				-
FL Electricity Consumption	Electricity / Steam	-	569,720	0	-	Yes	Consumption	MMBTU	8,564,870
FL Industrial Title V Consumption	Natural Gas	280,745	-	0	-	Yes	Consumption	MMBTU	5,109,365
FL Industrial Title V Consumption	Propane / LPG	156	-	0	-	Yes	Consumption	MMBTU	2,459
FL Industrial Title V Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	926	-	0	-	Yes	Consumption	MMBTU	12,484
FL Industrial Title V Consumption	Residual Fuel Oil (#4 and #6)	11,903	-	0	-	Yes	Consumption	MMBTU	157,965
FL Industrial Title V Consumption	Coal	196,030	-	0	-	Yes	Consumption	MMBTU	2,082,610
FL Industrial Title V Consumption	Wood	-	-	0	-	Yes	Consumption	MMBTU	-

Energy Generation and Supply	**Energy Generation and Supply**	-	-	0	-				-
FL Elec Generation GHG Analysis	Coal	1,535,272	-	0	-	No	Generation	MMBTU	15,706,588
FL Elec Generation GHG Analysis	Nuclear	-	-	0	-	No	Generation	MMBTU	51,754,929
FL Elec Generation GHG Analysis	Natural Gas	92,952	-	0	-	No	Generation	MMBTU	1,751,439
FL Elec Generation GHG Analysis	Distillate Fuel Oil (#1, #2 and #4)	2,227	-	0	-	No	Generation	MMBTU	30,014
FL Elec Generation GHG Analysis	Residual Fuel Oil (#4 and #6)	9,417	-	0	-	No	Generation	MMBTU	124,973
FL Elec Generation GHG Analysis	Wood / Biomass	-	-	0	-	No	Generation	MMBTU	-
FL Elec Generation GHG Analysis	MSW and Landfill gas	854	-	0	169,315	No	MSW Combusted	MMBTU	3,251,672
FL Elec Generation GHG Analysis	Other Wind and Hydro	-	-	0	-				7,331,091
FL Electricity Consumption	Electricity T/D Losses	-	147,750	0	-	Yes	Losses	MMBTU	2,221,201
FL Elec Generation GHG Analysis and FL Direct Fuel Consumption	Natural Gas T/D Losses	615,180	-	0	-	Yes	Losses	MMBTU	-
FL Electricity Consumption	Use of SF6 in the Utility Industry	33,983	-	0	-	Yes	Consumption	MMBTU	-
Industrial Processes	**Industrial Processes**	-	-	0	-				-
Not Reported	Cement Production	-	-	0	-	Yes			-
Not Reported	Iron and Steel Production	-	-	0	-	Yes			-
Not Reported	Ferroalloy Production	-	-	0	-	Yes			-
Not Reported	Aluminum Production	-	-	0	-	Yes			-
Not Reported	Paper and Pulp	-	-	0	-	Yes			-
Not Reported	Limestone Use	-	-	0	-	Yes			-
Not Reported	Soda Ash Use	-	-	0	-	Yes			-
Not Reported	Semi-Conductor Manufacturing	-	-	0	-	Yes			-
FL Industrial Sources	Glass Production	37,292	-	0	-	Yes			-
Not Reported	Chemical Manufacturing	-	-	0	-	Yes			-
Product Use (Ozone Depleting Substances)	**Product Use (Ozone Depleting Substances)**	-	-	0	-				-
FL Industrial Sources	All Refrigerants- except SF6	278,673	-	0	-	Yes			-
Transportation Energy	**On-road**	-	-	0	-				-
FL Emission Summary - Onroad	Motor Gasoline (E-10)	4,273,549	-	0	310,163	Yes	Consumption	MMBTU	65,172,504
FL Emission Summary - Onroad	Diesel	771,313	-	0	-	Yes	Consumption	MMBTU	10,530,485
Not Reported	Ethanol (E-85)	-	-	0	-	No	Consumption	MMBTU	-
Not Reported	Biodiesel	-	-	0	-	No	Consumption	MMBTU	-
Not Reported	Electricity Consumption	-	-	0	-	No	Consumption	MMBTU	-
	Rail	-	-	0	-				-
FL Emission Summary - Rail	Diesel	105,505	-	0	-	Yes	Consumption	MMBTU	1,421,471
FL Emission Summary - Rail	Coal Consumption	7	-	0	-	Yes	Consumption	MMBTU	280
FL Emission Summary - Rail	Electric	-	-	0	-				-

	Marine	-	-	0	-				-
FL Emission Summary -Com Marine	Gasoline	-	-	0	-	Yes	Consumption	MMBTU	-
FL Emission Summary -Com Marine	Distillate Fuels	-	-	0	-	Yes	Consumption	MMBTU	-
FL Emission Summary -Com Marine	Residual Fuels	16,434	-	0	-	Yes	Consumption	MMBTU	218,101
	Air	-	-	0	-				-
FL Emission Summary-Aircraft	All Fuels (Jet and Aviation Gasoline)	47,122	-	0	-	No	Consumption	MMBTU	660,343
	Off-road Mobile	-	-	0	-				-
FL Emission Summary-Nonroad	All Fuels (Diesel and Gasoline)	772,613	-	0	-	Yes	Consumption	MMBTU	10,835,100
Waste Management	**Solid Waste Management**	-	-	0	-				-
FL Waste	Scope 1: Actual emissions from Waste Facilities in Region. Scope 3: Forward Order Decay estimates for waste generated in region	596,684	-	326,347	201,744	Yes - ONLY Scope 3	MSW+CD Generated	Tonnes	1,016,144
Not Reported	MSW incineration (non grid connected)	-	-	0	-	Yes	MSW+CD Processed	Tonnes	3,089,899
	Sewage Treatment	-	-	0	-		MSW Sent for Incineration	Tonnes	-
FL Waste water	Central WWTPs and Septic Systems	120,000	-	0	-	Yes	MSW incinerated in Bounda	Tonnes	-
Agriculture	**Livestock**	-	-	0	-				-
GHF_FL_Agriculture	Enteric Fermentation	713,507	-	0	-	Yes			-
GHF_FL_Agriculture	Manure management	137,649	-	0	-	Yes			-
GHF_FL_Agriculture	**Crop Production and Soil Management**	-	-	0	-				-
GHF_FL_Agriculture	Use of Fertilizer	61,934	-	0	-	Yes			-
Not Reported	Crop Residue Incineration	-	-	0	-	No			-
Land Use and Forestry		-	-	0	-				-
GHG_FL_Forest	Urban Forest Annual Reserve	251,202	-	0	-	No			-
GHG_FL_Forest	Forest Carbon Reserve (TOTAL)	173,110,876	-	0	-	No			-

Grand Totals	Gross Totals	13,107,154	2,686,417	326,347	1,291,077	**16,119,918**
	Total with Aircraft	13,154,277	2,686,417	326,347	1,291,077	**16,167,041**
	Net Totals					

Note: Red text represents text added to original template to provide additional information or clarificatior

Protocol Compliance Report Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative	Adherence		
	Yes	No	Brief Description of Method and Issues
(Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size	X		Actual electricity sales data is provided for National Grid, NYSEG, RG&E and municipal utilities.
(Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Siz	X		As stated
(Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size			As stated
(Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size			As stated
(Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size			
(Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method.	X		Actual electricity sales data is provided for National Grid, NYSEG, RG&E and municipal utilities.
(Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method	X		As stated
(Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only.	X		As stated
(Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only.	X		As stated
(Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only.	X		As stated: none to report
(Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only.	X		As stated
(Rec) Allocated EIA SEDS commercial state consumption to counties based on Home Heating Fuel, HDD, employment and Commercial Square Footage. (Alt) Allocation based on Home Heating, HDD, and Employment only.	X		As stated
(Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) allocate SEDS EIA data based allocated by industrial employment	X		Actual electricity sales data is provided for National Grid, NYSEG, RG&E and municipal utilities.
(Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations.		X	Direct energy use as reported for Title 5 industrial facilities only, additional allocation based on statewide emissions by industrial employees is not representative of the region, therefore not included
(Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations.		X	Direct energy use as reported for Title 5 industrial facilities only, additional allocation based on statewide emissions by industrial employees is not representative of the region, therefore not included
(Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations.		X	Direct energy use as reported for Title 5 industrial facilities only, additional allocation based on statewide emissions by industrial employees is not representative of the region, therefore not included
(Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations.		X	Direct energy use as reported for Title 5 industrial facilities only, additional allocation based on statewide emissions by industrial employees is not representative of the region, therefore not included
(Rec) - Pie Slice Method. (1) Allocate directly all Title 5 / MMR reporting industrial facilities to the counties / municipalities. (2) compute total statewide industrial fuel use for all Title 5 / EPA MMR reporting facilities and subtract that from the EIA SEDS reported fuel use for the industrial sector (3) allocate the balance from step 2 to counties by industrial employment for manufacturing. The balance is assumed to represent smaller industry that does not report under Title 5 regulations.		X	Direct energy use as reported for Title 5 industrial facilities only, additional allocation based on statewide emissions by industrial employees is not representative of the region, therefore not included

(Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shal be reported. For overlap, prioritize EIA 923 Database.	X	EIA 923 database used
(Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shal be reported. For overlap, prioritize EIA 923 Database.	X	EIA 923 database used
	X	EIA 923 database used
(Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shal be reported. For overlap, prioritize EIA 923 Database.	X	EIA 923 database used
(Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. Wood CO2 emissions reported optionally as biogenic CO2, Ch4 and N2 Emissions required to be reported to Scope 1	X	EIA 923 database used: none to report
(Rec) - Direct Allocation from Title 5, MMR, or EIA 923 Database. All Grid Connected Power Generators with Nameplate capacity of 1 MW or greater shall be reported. MSW CO2 emissions split as 44% reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1.	X	EIA 923 database used
(Rec) - Acquire utility specific estimate of T/D (in %) and apply that to all consumption (res/commercial/industrial). Report emissions as Scope 2 using regional EGRID emission factors consistent with all Scope 2 calculations. (Alt) use a statewide average T/D loss of 5.28% as documented by EPA's EGRID reporting for New York.	X	Alternative method as stated
(Rec) - Acquire utility specific estimate of T/D (in %), compute as percentage of total residential/commercial/industrial/energy generation. Report as Scope 1 CH4 emissions. (Alt) use a statewide average of 1.8% as documented by National Grid in 2010 PSC Reporting.		Alternative method as stated
(Rec) - acquire utility specific estimate and report as SF6. (Alt) Apportion NYSERDA 2009 Emission Inventory Total for the state to counties based ration of EIA reported total electricity demand to computed regional or county demand for all sectors.	X	Based on conversations with P Groth and J Yeinger, used national 2010 emission inventory total (alternative method)
	X	Nothing to report
	X	Nothing to report
	X	Nothing to report
	X	Nothing to report
	X	Nothing to report
(Rec) Direct Allocation from from EPA MMR only. Small Sources to not to be included at this time.	X	Nothing to report
	X	Nothing to report
	X	Nothing to report
	X	Nothing to report
	X	As stated
	X	Nothing to report
(Rec) Use EPA 2009 Draft Guidance method. Allocate national per/capita emissions to counties based on population. Methods include mobile refrigeration	X	As stated
(Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region-appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions.	X	As stated
(Rec) Use MPO-provided VMT data local to your region, supplemented by DOT provided data (on Wiggio). Use regional-specific data on fleet profile and national fleet fuel economy data (on Wiggio) to estimate county-level GHG emissions. (Alt) Use EPA MOVES GHG module customized for your region-appropriate if you are running this model. Assume on-road fuel is 10% ethanol and report this fraction as Optional biogenic emissions on the ethanol line item.	X	As stated
Optional- Include regional E-85 consumption if you have it, and debit against your gasoline estimate create using VMT. Allocate 15% as gasoline to be reported as Scope 1, and 85% as ethanol to be reported as optional biogenic.	X	Not available
Optional- Include regional biodiesel consumption if you have it, and debit against your diesel estimate create using VMT. Because biodiesel blends change, allocate option biogenic component on this line item only, and retain the diesel fraction on the diesel line item.	X	Not available
Today this will be zero, but as NYSERDA pushes to electrify on-road transportation we will want to report here, debiting against electricity consumption in the other sectors as appropriate.	X	Not available
Freight and Passenger. (Rec) Use direct provider fuel consumption data allocated spatially to location of routes (Alt) Use Nyserda 2002 estimates of Diesel consumption by county directly.	X	As stated
Passenger and Commuter (Rec) Use direct provider electricity consumption data allocated spatially to location of routes (Alt) None identified.	X	As stated
		Nothing to report

	X		As stated, except recreational boating included in non-road data
Rec - USE NYSDEC 2007 data from the state emission inventory for the small and pleasure craft categories reported by county (data on Wiggio). For commercial distillate and bunkers, No consensus method identified- please document methods used.	X		As stated, except recreational boating included in non-road data
	X		As stated, except recreational boating included in non-road data
Optional Scope 1- Estimate Landing and Take off Cycle emissions using a dispersion model such as EDMS, or with related data from the NYSDEC for the 2007 state emission inventory. Optional Scope 3, use FAA statistics on departure miles from regional airport, allocate jet fuel use to it, then allocate to counties by fraction of population served	X		Scope 1 option, using EDMS. Totals are also included in GHG Inventory reporting as part of Sustainability Plan
Rec - USE NYSDEC 2007 NONROAD data from the state emission inventory (data on Wiggio) for all categories except small marine.	X		As stated, but includes recreational marine
This is fugitive CH4 emissions from landfills. There are two required Scopes. Scope 1 - Estimate of actual emissions in regional boundary. (rec) use MMR or Title 5 (annual landfill reporting) data directly for facilities (data on Wiggio). For recently closed landfills or for areas without reported data, use a First Order Decay model to estimate emissions. Scope 3- emissions footprint attributed to current waste generation regardless of where it is treated. (rec) Estimate county level MSW and C/D waste generation and apply a representative FOD model with prevailing CH4 captures rates forward-casted 50 years to estimate the footprint.	X		Scope 1 reported as actual 2010 waste facility emissions reported (EPA MRR). Scope 3 calculated and reported as stated
Rec - for any MSW incinerated that does not generate grid connected power, compute emissions. MSW CO2 emissions split. 44% shall be reported as Scope 1 as part of non-biogenic (plastics etc), and 56% can be reported as option biogenic based data for 2005 on http://www.eia.gov/cneaf/solar.renewables/page/mswaste/msw_report.html. All Ch4 and N2O shall be reported under required Scope 1	X		None Reported
Determine population covered by WWTPs. (Rec)- Use the ICLEI Local Government Operations Protocol and apply to all facilities in the region. (Alt) use methods as described in the EPA 2009 Draft GHG guidance to translate populations served into emissions using default data. Determine population covered by Septic Systems, and apply the default emissions / capita as described in the ICLEI Local Government Operations Protocol.		X	Based on conversations with P. Groth and J. Yeinger, used State Inventory Tool and regional population, allocated to county by population
	X		As stated
(Rec) Methods as described in the EPA 2009 guidance and executed in the EPA's State Inventory Tool. Use locally resolved fertilizer, crop, and livestock population from either the 2007 Ag census or the US NASS system to get county-level data and make calculations for each county.	X		As stated
	X		As stated
	X		None reported
Optional Source and Sink. Use methods described in the EPA 2009 Guidance. Use local forest inventory data, or use the US Forest Services online inventory tool for forests. For carbon stock factors use the National Council for Air and Stream Improvement's Carbon On-Line Estimator. (NCASI 2008) Use the	X		As stated
		X	Total reported for information, change is not relevant to WG discussions

Sum Totals in columns for all EXCEPT ANY FORESTRY SINKS. Totals in the Scope 1 column can be a considered a physical roll up of emissions that occur in boundary, and is analogous to reporting that is done for state and federal GHG inventories, and for air quality management.

Value above MINUS and reported optional forestry sinks.

REDC GHG Emissions Roll Up Report
Year: 2010
(all emissions in Column D, when summed will equal the total County or REDC protocol compliant GHG emissions estimate)

REDC / County Name	Finger Lakes

Color Code

REQUIRED for the Roll Up Report, though some data may be zero, N/A, or considered to small to count

Report NO Data in cell

DRAFT Roll Up Report CGC. Emissions in MTCDE								
		CO2e	CO2	CH4	N2O	PFC	HFC	SF6
Built Environment	**Residential Energy Consumption**							
	Electricity / Steam	1,003,997	999,114	672	4,211	-	-	-
	Natural Gas	2,457,416	2,455,008	972	1,435	-	-	-
	Propane / LPG	205,344	204,535	205	604	-	-	-
	Distillate Fuel Oil (#1, #2, Kerosene)	216,103	215,378	183	542	-	-	-
	Wood	10,565	-	3,597	6,968	-	-	-
	Commercial Energy Consumption					-	-	-
	Electricity / Steam	964,950	960,257	646	4,047	-	-	-
	Natural Gas	1,592,903	1,591,342	630	930	-	-	-
	Propane / LPG	52,185	51,979	52	154	-	-	-
	Distillate Fuel Oil (#1, #2, Kerosene)	141,697	141,221	120	355	-	-	-
	Residual Fuel Oil (#4 and #6)	-	-	-	-	-	-	-
	Coal	1,275	1,266	3	6	-	-	-
	Wood	2,269	-	772	1,497	-	-	-
	Industrial Energy Consumption					-	-	-
	Electricity / Steam	569,720	566,949	381	2,390	-	-	-
	Natural Gas	280,745	280,470	111	164	-	-	-
	Propane / LPG	156	155	0	0	-	-	-
	Distillate Fuel Oil (#1, #2, Kerosene)	926	923	1	2	-	-	-
	Residual Fuel Oil (#4 and #6)	11,903	11,863	10	29	-	-	-
	Coal	196,030	194,516	481	1,033	-	-	-
	Wood	-	-	-	-	-	-	-
	Energy Generation and Supply					-	-	-
	Electricity T/D Losses	147,750	147,032	99	620	-	-	-
	Natural Gas T/D Losses	615,180	-	615,180	-	-	-	-
	Use of SF6 in the Utility Industry	33,983	-	-	-	-	-	33,983
	Industrial Processes		-	-	-	-	-	-
	Cement Production		-	-	-	-	-	-
	Glass Production	37,292	-	-	-	-	-	-
	Iron and Steel Production		-	-	-	-	-	-
	Ferroalloy Production		-	-	-	-	-	-
	Aluminum Production		-	-	-	-	-	-
	Paper and Pulp		-	-	-	-	-	-
	Limestone Use		-	-	-	-	-	-
	Soda Ash Use		-	-	-	-	-	-
	Semi-Conductor Manufacturing		-	-	-	-	-	-
	Product Use (ODS Substitutes)		-	-	-	-	-	-
	All Refrigerants- except utility SF6	278,673	-	-	-	-	278,673	-
Transportation Energy	**On-road ALL (Total reflects subtraction of ethanol)**	-	-	-	-	-	-	-
	Motor Gasoline (E-10)	4,273,549	4,258,449	11,280	3,821	-	-	-
	Diesel	771,313	768,758	1,899	655	-	-	-
	Ethanol		-	-	-	-	-	-
	Biodiesel		-	-	-	-	-	-
	Rail		-	-	-	-	-	-
	Diesel	105,505	105,151	264	90	-	-	-
	Coal	7	7	0	0	-	-	-
	Marine		-	-	-	-	-	-
	Gasoline		-	-	-	-	-	-
	Distillate	-	-	-	-	-	-	-
	Residual Fuel Oil	16,434	16,379	41	14	-	-	-
	Off-road Mobile		-	-	-	-	-	-
	All Fuels (Diesel and Gasoline)	772,613	769,937	1,998	678	-	-	-
Waste Management	**Solid Waste Management**		-	-	-	-	-	-
	Landfill Methane from FOD of waste generated	326,347	-	326,347	-	-	-	-
	MSW incineration (non grid connected)		-	-	-	-	-	-
	Sewage Treatment		-	-	-	-	-	-
	Central WWTPs and Septic Systems (Total reflects rounding)	120,000	-	80,000	40,000	-	-	-
Agriculture	**Livestock**		-	-	-	-	-	-
	Enteric Fementation	713,507	-	713,507	-	-	-	-
	Manure management	137,649	-	114,656	22,994	-	-	-
	Crop Production and Soil Management		-	-	-	-	-	-
	Use of Fertilizer	61,934	-	-	61,934	-	-	-
	Crop Residue Incineration		-	-	-	-	-	-
Grand Totals		16,119,918	13,740,690	1,874,107	155,173	-	278,673	33,983

Note: Red text represents text added to original template to provide additional information or clarification

APPENDIX C: INDICATOR EVALUATION

Energy Indicators

ENERGY
POTENTIAL INDICATORS

Indicator	Description	Calculation	Data Required	Data Availability	General Notes
Regional energy usage per capita (MMBtu)	NYSERDA Required Indicator 1A: Encompasses all of the energy consumption within the region on a scale that is relatable.	Calculations should include all sources of energy consumption (fuel combustion, electricity, renewable, etc.)	Types of energy consumed and broken down by use category, County and type.	Data provided through NYSERDA, Public Utilities and the GHG Analysis provided by Ecology & Environment, Inc.	As alternative energy sources grow in the region, methods for gathering this data as a portion of the overall energy usage per capita will be valuable as a measurement of success region.
Renewable Energy - Total installed renewable energy capacity	Understanding of the willingness of the population to adopt newer, cleaner, renewable/alternative sources of energy generation.	Sum of all available renewable energy sources, based on availability not consumption	Collect data from all available renewable energy generators and users to determine total available.	Power companies - wind farms, reverse metering customers, farm bureau, local municipal assessors	No solar, bio-gas, and ethanol data gathered. Users not selling back to the grid (self sufficient) should be included.
Governance - Energy Policy - Percent of regional population living in areas with local energy codes exceeding state requirements, and/or regulations for benchmarking and retrofitting private buildings	Provides a view to the influence of local building and energy codes on energy consumption	Total regional population living in areas with local energy codes above state requirements / total population of region	Track adoption of local energy policy with exceeding requirements within the region.	None at this point.	If it occurs, someone will have to monitor consumption based on higher standards.
Energy Efficiency	Reduce energy consumption utilization in heating, cooling, lighting (interior and exterior) and water distribution for all public and private sector energy consumers.	Determine the construction date of buildings and determine the Energy Conservation Construction Code they were constructed/renovated under	Oil, propane, fossil fuel, and natural gas data in addition to electric consumption data	Energy code, number of buildings at net-zero/neutral from a carbon footprint point of view, reduction in the amount of energy necessary to condition spaces, increase in simple energy controls, and changes in operational procedures.	No data currently available across the region for the long range effectiveness of energy efficiency programs & methods of reaching target savings
Greater Regional Energy Self-Reliance	Evaluate and Plan for greater Energy Self-Reliance during Natural and Other Disasters	Available methods and percentages of energy entering within the Region from all energy sources.	Identification of all sources of energy entering the Region and its method of distribution (can it be isolated)	Historical records of transformational interruptions. (1966 Blizzard, Ice Storms)	
Regional energy generation per capita (MMBtu)	Encompasses all of the energy generation within a region on a scale that is relatable.	Calculations should include all sources of energy generation (fuel combustion, electricity, renewable, etc.)	Types of energy being generated.	Data provided through NYSERDA, did not include all sources	Data should be verified to determine it includes all energy providers and is broken down to the region only. Should include all alternate/renewable fuel sources.
Renewable Energy - availability/accessibility/affordability	Measure the ease of access the region has to avail itself of alternate energy sources at affordable price points.	Track the sources of alternate energy, the ease of obtaining the energy across the region, the cost of the alternate energy on the open market	Tracking sales of consumer choices in energy sources, Geothermal units installed in conditioned spaces, purchase of alternate energy electric, alternate fuel for heating	No known tracking source for purchase of alternate fuels. No regional collection of data for purchase of alternate electrical power.	Tracking availability/reliability of alternate fuel and energy sources should be monitored.
Energy Conservation	Review public policies on energy efficiency of public controlled energy consumption in uses not regulated under the NYS Energy Construction Conservation Code. Review energy efficiencies of private industrial processes that are not regulated under the NYS ECCC.	Track policies and practices and determine if policies and practices are utilizing best practices to reduce energy consumption.	Energy consumption data from energy consumers both public and private for energy consumption that is not regulated under the NYS Energy Conservation Construction Code	Power usage for street lighting, traffic safety lighting, sports venues, public landscaping and art illumination should be available	There does not appear to be data collected broken down by energy usage for regulated and non-regulated sources of consumption

ENERGY

NYSERDA Indicator Evaluation

	Evaluation Criteria (Weight)					
Indicator	**Consistent with NYSERDA Guidance (3)**	**Consistent with Regional Performance Measure (1)**	**Favored by Stakeholder Group (2)**	**Data Availability (2)**	**Summary Score**	**General Notes**
Regional energy usage per capita (MMBtu)	8	3	5	4	45	Data received through NYSERDA
Renewable Energy - Total installed renewable energy capacity	6	3	5	4	39	Data provided on consumption, need additional data on installed/available
Energy Efficiency	5	2	4	1	27	Information received for Residential, Commercial, and Industrial uses. Industrial not broken down by common measurement.
Governance - Energy Policy - Percent of regional population living in areas with local energy codes exceeding state requirements, and/or regulations for benchmarking and retrofitting private buildings	6	2	2	1	26	Not monitored and no baseline has been established.
Greater Regional Energy Self-Reliance	4	2	5	0	24	Do you have to sell to the grid all the time? Are there regulations on distribution/contracts that will prohibit self-reliance?
Regional energy generation per capita (MMBtu)	4	2	4	4	30	Data received through NYSERDA
Renewable Energy - availability/accessibility/affordability	4	2	4	1	24	Data required to create base-line
Energy Conservation	0	2	2	1	8	Data required to create base-line

ENERGY

Place-Sourced Indicator Evaluation

	Evaluation Criteria											
	Enrichment of 5 Capitals:											
Indicator	**Natural**	**Built / Manufactured**	**Social**	**Human**	**Financial**	**Diversity**	**Resiliency**	**Life cycle cost and benefit**	**Ability to leverage Story of Place - Innovation "Accelerator"**	**Favored by Stakeholder Group**	**Summary Score**	**General Notes**
Regional energy usage per capita (MMBtu)	1	1	1	1	1	1	1	1	2	5	15	
Renewable Energy - Total installed renewable energy capacity	1	1	1	1	1	1	1	1	2	5	15	
Governance - Energy Policy - Percent of regional population living in areas with local energy codes exceeding state requirements, and/or regulations for benchmarking and retrofitting private buildings	1	1	1	1	1	1	1	1	2	3	13	Maintaining 'home rule' has strong impact from Stakeholders.
Energy Efficiency	1	1	1	1	1	1	1	1	2	4	14	
Greater Regional Energy Self-Reliance	1	1	1	1	1	1	1	1	2	3	13	Potential on practicality needs to be measured in greater detail.
Regional energy generation per capita (MMBtu)	1	1	1	1	1	1	1	1	2	3	13	
Renewable Energy - availability/accessibility/affordability	1	1	1	1	1	1	1	1	2	4	14	Questions were raised about methods to track this information
Energy Conservation	1	1	1	1	1	1	1	1	2	2	12	What can the public entities do to go above code or conserve in non-regulated areas and what is available to entice non-public entities to conserve in non-regulated areas?

ENERGY
Recommended INDICATORS

NYSERDA Indicators	Description	Calculation	Data Required/Source	Baseline Value (2010)	General Notes
Regional energy usage per capita (MMBtu)	Encompasses all of the energy consumption within the region on a scale that is relatable.	Calculations should include all sources of energy consumption (fuel combustion, electricity, renewable, etc.)	Types of energy consumed, broken down by use category and energy type.	31.36 mmBTU/person	The data is the result of the energy usage within the region divided by the 2010 population, as reported in the E&E report.
Renewable Energy - Total installed renewable energy capacity	Understanding of the willingness of the population to adopt newer, cleaner, renewable/alternative sources of energy generation.	Sum of all available energy sources, based on availability, not consumption.	Collect data	3,495,768 mmBTU across the region	Includes hydro, wind and landfill gas; Missing solar, bio-gas, and ethanol data.
Governance - Energy Policy - Percent of regional population living in areas with local energy codes exceeding state requirements, and/or regulations for benchmarking and retrofitting private buildings	Reduce energy consumption utilization in heating, cooling, lighting (interior and exterior) and water distribution for all public and private sector energy consumers.	Track Local Building, Energy, Fire, etc Codes	Oil, propane, fossil fuel, and natural gas data	0%	Although there are some communities that have pledged to participate in the Energy Smart Communities program thru the NYS DEC, none of the communities within the region have adopted policies or local laws that exceed the minimum requirements of the 2010 Energy Conservation Code within the region.
Place-Sourced Indicators	**Description**	**Calculation**	**Data Required/Source**	**Baseline Value (2010)**	**General Notes**
Greater Regional Energy Self-Reliance	Evaluate and Plan for greater Energy Self-Reliance during Natural and Other Disasters	Available methods and percentages of energy entering within the Region from all energy sources.	Identification of all sources of energy entering the Region and its method of distribution (can it be isolated)	Data currently unavailable	This might include working farms who generate enough energy to be self sufficient, and any other entities who generate energy that is equal to or greater than that which they consume
Regional energy generation per capita (MMBtu)	Encompasses all of the energy generation within a region on a scale that is relatable	Calculations should include all sources of energy generation (fuel combustion, electricity, renewable, etc.)		19.6 mmBTU per capita	This is for electrical generation only. Additional data required to include all renewable/alternate energy sources
Renewable Energy - availability/ accessibility/affordability	Understanding of the willingness of the population to adopt newer, cleaner, renewable/alternative sources of energy generation.	Track increases or decreases in consumption	Tracking sales for consumer choices in energy sources, Geothermal units installed in conditioned spaces, and population increase over a period of time	Data currently unavailable	Base-line data not collected at this point in time
Energy Efficiency	Provides a view to the influence of local building and energy codes on energy consumption	Difference in energy consumption of residential and non-residential buildings that exceed minimum state energy code standards relative to buildings that only meet minimum energy code standards.	Track new construction for residential and non-residential buildings. Develop data on annual energy consumption rates based on per capita for residential square footage and non-residential square footage for new construction.	Data currently unavailable	Track properties that have been constructed to above the minimum Energy Code and track the energy consumption over time.

Transportation Indicators

TRANSPORTATION
POTENTIAL INDICATORS

Indicator	Description	Calculation	Data Required	Data Availability	General Notes
Total percentage of people commuting via walking, biking, transit and carpooling	Provides a view to access to alternative modes of transportation	% of workers commuting by mode = # of workers traveling by mode in region / total # of workers in region x 100	Total # of workers in region # of workers commuting by mode	ACS/census by county	ACS 3-year estimate data from 2009-2011 provides drive alone, carpool and transit shares and total workers for each of the 9 counties, also noted as recommended indicator by PTNY
Vehicle miles traveled per capita	Provides a view to automobile usage in a region	VMT / total population	VMT & total population	GTS, NYSDOT, GHG inventory	
Greenhouse Gas Emissions by source	Reduction of transportation specific GHG emissions	GHG emissions in CO2e per source / total pop	total GHG emissions by source	Tier II GHG inventory	
Travel time to work	Tracks trends in travel commute times, reflecting the economic and social impacts of delays resulting from congestion	average commute times throughout region for all modes	average commute times throughout region for all modes	ACS/census by county	ACS 3-year estimate data from 2009-2011 provides mean travel time to work in minutes for each of the 9 counties
Fuel consumption per capita	Mobile energy combustion can be significant at a regional level - this indicator provides insight into transport activity and the associated energy use	Total trans fuel consumption (MMBTu) / total population	Trans fuel consumption & total population	GHG inventory	
% income spent on transportation	Affordability of transportation choices	None	min, average and max % of income spent on transportation by county	breakdown of H+T index http://htaindex.cnt.org	
Housing+Transportation Index	Transportation and housing affordability	None	H+T Affordability Index - Center for Neighborhood Technology	http://htaindex.cnt.org	
# of households with vehicles	The number of households that report having a vehicle kept at the home, available for use, expressed as a percentage of all households.	# of households with a vehicle / # of total households X 100	# of households with vehicle & # of households	ACS/census by county	
Average airfares	The average airfare paid by passengers for a one-way domestic trip.	average airfares for one-way domestic trip	one-way domestic trips	USDOT for regional airports	
Number of alternative fuel registered vehicles	Provides a view to fuel efficiency in transport	None	# of registered alternative fuel vehicles	NYSDMV/NYSDOT	
Accessibility - Percentage of population within X miles of transit	Provides a view to the need for automobiles	Urban/suburban: Pop within 0.5 miles / total pop Park & Ride: Pop within 5 miles / total pop Inter-city: Pop within 30 miles / total pop	population distribution, location of transit routes/facilities, bus & ferry routes	NYSDOT, Transit authorities	
Transit Ridership	Provides insight into the level of mass transit use	None	# of annual riders	Transit authority	
Gaps in core multi-use trails network	Gaps in trails compared to full build out plan (36 miles short)	None	length of miles completed (Core Multi-Use Trails Network)	Rochester TMA - full build out is 260 miles (needs approximately 36 miles to be complete)	
% roads rated poor	The condition of the pavement on roads, expressed as a percentage of miles rated "poor" in the NYS Department of Transportation's rating system.	None	NYSDOT/GTC ratings	GTC notes data is available for about 80% of roads traveled in region	
Annual gasoline sales per county	Annual gasoline sales in thousand gallons	sum of estimated annual gas sales per county	gas sales per county	NYSERDA patterns & trends: 1990-2010 Appendix C	
Travel time index	Tracks trends in travel commute times, reflecting the economic and social impacts of delays resulting from congestion	None	travel time index	Rochester TMA - GTC available now (GTC may have data for all routes in region soon with new travel time program)	
# of public transit trips per resident	The number of public transit trips expressed as a rate per resident. A public transit trip is defined as a one-way ride on a bus or Lift Line service that accommodates residents with disabilities.	# of one-way transit trips / total pop	# of transit trips & total pop	RGRTA	
Personal injury crashes	The number of reported motor vehicle crashes causing personal injuries, expressed as a rate per 10,000 residents. A personal injury crash is defined as a crash resulting in injury to a motorist, bicyclist and/or pedestrian; this does not include fatal injuries.	None	# of injury crashes	NYSDMV - Accident Location Information System	
Crash fatalities	The number of fatalities caused by motor vehicle crashes, expressed as a rate per 10,000 residents. Fatalities include any deaths of motorists, bicyclists or pedestrians that occur within 30 days following injury in a motor vehicle accident. GTC measurement is a 3-year rolling average of the # of accidents that result in a fatality.	None	# of crashes resulting in fatality (if consistent with GTC calculation - 3-year rolling average)	NYSDMV - Accident Location Information System	
Alcohol-related crashes	The number of alcohol-related motor vehicle crashes resulting in fatalities or personal injuries, expressed as a rate per 10,000 residents. This includes all police-reported crashes in which the driver was found to have blood alcohol content higher than .08.	None	# of alcohol-related crashes	NYSDMV	
Miles of trails	Provides a view to the need for automobiles and diversity of transportation options	None	miles of existing trails	Rochester TMA - GTCs Regional Trails Initiative Phases 1 & 2 for TMA and non TMA	

Indicator	Description	Calculation	Data Required	Data Availability	General Notes
Transit Score	Identifies those locations that have the conditions to support transit (enabling the identification of locations for potential future transit) and those locations that do not have the conditions to support transit (enabling the identification of locations with transit and the land use changes necessary to make that transit more successful)	0.41(pop per acre) + 0.09 (jobs per acre) + 0.74 (0 car households per acre) Low: <0.6 Marginal: 0.6-1.0 Medium: 1.01-2.50 Medium-high: 2.51-7.50 High: >7.50	density of population, density of employment, 0 car households	Census, NYS DOL	
Number of alternative fuel stations	Provides a view to fuel efficiency in transport	None	# of alt fuel stations	http://www.afdc.energy.gov/locator/stations/#results?utf8=%E2%9C%93&location=rochester%2C+ny&filtered=true&fuel=all&owner=all&payment=all&ev_level1=true&ev_level2=true&ev_dc_fast=true&radius_miles=5	
Miles of transit routes	Provides a view to the need for automobiles	None	miles of transit routes across region	Transit authority	
Change in number of miles of multi-use trails, sidewalks, and bike boulevards	Provides a view of the diversity of transportation options	None	miles of new bike/pedestrian infrastructure	municipalities	Recommended by PTNY
Annual municipal or per capita expenditures on bicycling and pedestrian infrastructure	Provides a view of the diversity of transportation options	None or amount of expenditures / total population	$ spent by municipality on bike/pedestrian infrastructure	municipalities	Recommended by PTNY
Connectivity and/or accessibility index for walking, cycling and public transit	Provides a view of the diversity of transportation options	Variety of different potential ways to calculate http://reconnectingamerica.org/assets/Uploads/TRB2004-001550.pdf	varies	varies	Document referenced by PTNY appears to be more applicable to neighborhoods or urban areas, may not be appropriate for rural areas
Miles of roads/number of bridges within flood zones (100 year)	Indicates vulnerability in transportation infrastructure	Graphical representation by County with total number of Principal Arterials in 100-year flood zones noted	GIS shapefiles of 100-year flood zones and roadway classifications	FEMA, counties, NYSDOT	Flood zone data not available for Oleans, Seneca, Wyoming and Yates
Federal-aid highways in TMA with Complete Sidewalks	Represents those roadways to which FHWA funds can be programmed for their report or maintenance that have sidewalks on both sides of the street with no gaps	None	GTC Inventory	GTC conducted an inventory of over 1,000 miles of federal-aid roads inn TMA	

TRANSPORTATION

NYSERDA Indicator Evaluation

	Evaluation Criteria (Weight)					
Indicator	**Consistent with NYSERDA Guidance (3)**	**Consistent with Regional Performance Measure (1)**	**Favored by Stakeholder Group (2)**	**Data Availability (2)**	**Summary Score**	**General Notes**
Total percentage of people commuting via walking, biking, transit and carpooling	8	3	4	3	41	
Vehicle miles traveled per capita	8	3	4	3	41	
Housing+Transportation Index	7	1	4	3	36	
Greenhouse Gas Emissions by source	6	3	3	4	35	
Fuel consumption per capita	6	1	5	3	35	
Travel time to work	6	3	3	3	33	
Number of alternative fuel registered vehicles	7	1	3	1	30	
Accessibility - Percentage of population within X miles of transit	6	1	4	0	27	
Transit Ridership	6	1	3	1	27	
% income spent on transportation	2	3	4	3	23	
Transit Score	6	1	1	0	21	
Miles of roads/number of bridges within flood zones (100 year)	2	1	2	3	17	
Annual gasoline sales per county	1	1	2	4	16	
Total miles of roadways	0	1	4	3	15	
# of households with vehicles	0	3	2	3	13	
Average airfares	0	3	2	3	13	
Gaps in core multi-use trails network	0	3	2	2	11	
% roads rated poor	0	3	2	2	11	
Federal-aid highways in TMA with Complete Sidewalks	0	3	2	2	11	
Travel time index	0	3	1	2	9	
# of public transit trips per resident	0	3	2	1	9	
Personal injury crashes	0	3	2	1	9	
Crash fatalities	0	3	2	1	9	
Alcohol-related crashes	0	3	2	1	9	
Miles of trails	0	2	1	2	8	
Number of alternative fuel stations	0	1	3	0	7	
Change in number of miles of multi-use trails, sidewalks, and bike boulevards	0	1	3	0	7	
Annual municipal or per capita expenditures on bicycling and pedestrian infrastructure	0	1	3	0	7	
Connectivity and/or accessibility index for walking, cycling and public transit	0	1	3	0	7	

TRANSPORTATION

Place-Sourced Indicator Evaluation

	Evaluation Criteria											
	Enrichment of 5 Capitals:											
Indicator	**Natural**	**Built / Manufactured**	**Social**	**Human**	**Financial**	**Diversity**	**Resiliency**	**Life cycle cost and benefit**	**Ability to leverage Story of Place - Innovation "Accelerator"**	**Favored by Stakeholder Group**	**Summary Score**	**General Notes**
Total percentage of people commuting via walking, biking, transit and carpooling	1	1	1	1		1				4	9	
Total miles of roadways	1	1	1		1			1		4	9	
Vehicle miles traveled per capita	1	1	1	1						4	8	
Fuel consumption per capita	1		1	1						5	8	
% income spent on transportation			1	1	1					4	7	
Housing+Transportation Index			1	1	1					4	7	
Number of alternative fuel registered vehicles	1		1	1		1				3	7	
Accessibility - Percentage of population within X miles of transit			1	1		1				4	7	
Number of alternative fuel stations	1		1	1		1				3	7	
Change in number of miles of multi-use trails, sidewalks, and bike boulevards	1		1	1		1				3	7	
Annual municipal or per capita expenditures on bicycling and pedestrian infrastructure	1		1	1		1				3	7	
Connectivity and/or accessibility index for walking, cycling and public transit	1		1	1		1				3	7	
Miles of roads/number of bridges within flood zones (100 year)		1	1	1			1	1		2	7	
Greenhouse Gas Emissions by source	1		1	1						3	6	
Transit Ridership			1	1		1				3	6	
Travel time to work			1	1						3	5	
Gaps in core multi-use trails network	1		1			1				2	5	
% roads rated poor		1					1	1		2	5	
Annual gasoline sales per county	1		1	1						2	5	
Federal-aid highways in TMA with Complete Sidewalks			1	1		1				2	5	
# of households with vehicles			1	1						2	4	
# of public transit trips per resident		1				1				2	4	
Personal injury crashes			1	1						2	4	
Crash fatalities			1	1						2	4	
Alcohol-related crashes			1	1						2	4	
Miles of trails		1	1			1				1	4	
Miles of transit routes			1	1		1				1	4	
Average airfares					1					2	3	
Travel time index			1	1						1	3	
Transit Score			1	1						1	3	

TRANSPORTATION
Recommended INDICATORS

NYSERDA Indicators	Description	Calculation	Data Required/Source	Baseline Value (2010)	General Notes
Total percentage of people commuting via walking, biking, transit and carpooling	Provides a view to access to alternative modes of transportation	% of workers commuting by mode = # of workers traveling by mode in region / total # of workers in region x 100	Total # of workers in region # of workers commuting by mode	15%	from ACS 5-year estimates (2006-2010)
Vehicle miles traveled per capita	Provides a view to automobile usage in a region	Annual VMT / total population	Annual VMT & total population	9,742	from GHG Inventory
Place-Sourced Indicators	**Description**	**Calculation**	**Data Required/Source**	**Baseline Value (2010)**	**General Notes**
Transportation energy consumption per capita	Mobile energy combustion can be significant at a regional level - this indicator provides insight into transport activity and the associated energy use	Annual total trans energy consumption (MMBTu) / total population Conversion from MMBtu to gallons of gasoline	Annual trans energy consumption & total population Conversion factor from MMBtu to gallons of gasoline	73 MMBtu/capita 635 gal gas/capita	from GHG Inventory - annual MMBtu for each transportation mode by county MMBtu conversion factory from MIT Units & Conversions Fact Sheet
% income spent on transportation	Affordability of transportation choices	Population based weighted average % income spent on transportation = [(average median household income by county ($) / average amount of money spent on transportation ($)) *county population] / total regional population	Average median household income by county , Average amount spent on transportation by county, county population data	25.5%	Does not include data from Wyoming and Yates Counties - amount spent on transportation not available in these counties Median household income from ACS, amount spent on transportation from H&T Index
Miles of roads/number of bridges within flood zones (100 year)	Indicates vulnerability in transportation infrustructure	Graphical representation by County with total number of Principal Arterials and bridges in 100-year flood zones noted	GIS shapefiles of 100-year flood zones, roadway classifications and bridges	Principal Arterials = 33.54 mi Bridges = 439	Does not include miles of roads in Oleans, Seneca, Wyoming & Yates counties since the 100-year flood maps were not available
Freight tonnage moved by truck and rail	Measures shifts in the amount of freight moved by truck and rail	None	IHS/Global Transearch Database via NYSDOT	Truck = 203,052,000 Rail = 31,294,000	As noted in *Transportation Strategies for Freight/Goods Movement in the Genesee-Finger Lakes Region - Regional Freight and Economic Profile* , Genesee Transportation Council, Table 4, Page 3-65.

Land Use Indicators

LAND USE
POTENTIAL INDICATORS

Indicator	Description	Calculation	Data Required	Data Availability	General Notes
3A. Land-use Patterns – Per capita land consumption	Assessment of land consumption	Total amount of land developed divided by population of the region	Total acres of land developed from MRLC National Land Cover Database / population	Need MRLC national database	NYSERDA Required indicator
3B.Percentage of redevelopment: vacant buildings and sites	Measures redevelopment/ reuse of vacant buildings	Sq. ft. renovation and acres redeveloped divided by total sq. ft. and total acres developed	Building permit data for renovations by all municipalities; total acreage of land that is redeveloped	Building permit data from individual communities; data may not be readily available	Need to determine new build vs. redevelopment, which may be difficult. Information on individual parcels or properties may be problematic, as opposed to square footage data. Not necessarily a good measure of total development.
3I.Acres protected through DEC and other public, non-profit and private protected lands	Land preservation	Acres purchased or protected by public, non profit or private entity	acreage data for protected/preserved lands	Through NYSDEC, Finger Lakes Land Trust, NYS Agriculture and Markets, CUGIR (Cornell University)and other land conservancy agencies and organizations	Assumes there is an inventory of purchasers which needs to be compiled from many sources
3C1.Land-use Patterns – Percentage of jobs and housing occurring inside municipal centers	Measures concentration of population in "location-efficient" areas (easier to minimize commutes / VMT)	Total jobs in municipal centers divided by total jobs; Total population in centers divided by total population	Jobs and population data	U.S. Census and Dept. of Labor	Need to compile population by "centers." Job data will be difficult to sub-allocate below regional level
8A.Number of Climate Smart Communities within region & Number of certified Climate Smart Communities	Measures programmatic involvement in the region	Number of Climate Smart Communities and number of certified Climate Smart Communities	Listing of Climate Smart and Certified Climate Smart communities	NYSDEC	Indicator would be easy to measure, but communities that sign up for this program may not all be actively participating
3F.% living within a 1/4 mile of a park	quality of life	GIS analysis	Data on park locations and population	U.S. Census for population; GTC, GFLRPC or RPS data	Not necessarily a good measure of sustainability as compared to other indicators
3J.Land use patterns: housing mix	Shows housing mix for region	Number of housing units of each type divided by the total number of units	housing data by type (single, double, apartments, etc.)	U.S. Census	Not sure what this really tells us with respect to achieving sustainability.
3C2.Percentage of housing units located within cities and villages that are affordable to low-moderate income households	Similar to 3C1, but includes measure of affordability	% of units affordable to low to mod income HHs in centers divided by total housing supply, by tenure (renter/owner)	Owner occupied affordable housing units and renter occupied affordable housing units	HUD database	Not available for more rural counties. Need to determine "centers"
3D.Housing density (for urban, suburban, and rural)	Provides view of housing density	Number of units divided by square miles of land area (by urban, suburban and rural)	Square miles of land area and total number of units	U.S. Census	Need to define urban vs. suburban vs. rural and do separate calculations; What would be measured here may be more easily measured by looking at the proportion of residents living in population centers
3E.Land-use Patterns – Sprawl-entropy Index	Provides a view to the extent of sprawl	Shannon Index (see Indicator Memo)	Square miles of land area, number of units by urban, suburban and rural by census tract	U.S. Census	Need to define urban vs. suburban vs. rural and do separate calculations for each (NYSERDA suggests by census tract level which would be labor intensive). Non-intuitive measure
Deconcentration of Poverty	Measures the reduction in the concentration of poverty in the region	Poverty rate by geography	Census data for poverty levels	U.S. Census	Addresses most of the five capitals; good indicator of community prosperity. Need to decide whether to look at poverty rate by % of households, by individuals, etc. and how to format and index the measure
Proportion of residents living in existing population centers	Measures population density relative to land consumption	Population in centers divided by total population	population data by centers	U.S. Census	Variation of NYSERDA indicator 3.E; easier measure of smart growth (sprawl entropy) with respect to reducing infrastructure investments for new development/redevelopment, etc.
Age Distribution	Measures the retention of young people in communities	Age distribution by geography	Census data- age of population	U.S. Census	Must decide how to break out by age group, such as under 25, over 65, etc. (how do you make this a metric; need to decide how to format and index this measure). Good indicator of vibrancy and diversity of local economy for job availability and ability to attract and retain younger people (creative potential)
Number of communities with Comprehensive Plans less than 5 years old	Current plans that likely measure sustainability	Number of plans available	availability and date of most recent comprehensive	Counties, GFLRPC and individual municipalities	Labor intensive; would have to contact planning agencies and local municipalities. Likely good indicator of municipal commitment to sustainability and for local adoption of improved zoning or other regulations for smart growth
Regional Cooperation	Measure of municipal collaboration throughout the region	Number of communities with intermunicipal agreements	intermunicipal agreements/shared services agreements	Information from individual municipalities	Labor intensive; would need to gather data from individual communities and agreements may differ from place to place. Not all may be oriented for sustainability.
Historic Preservation	Measuring adaptive reuse and preservation of existing building stock	Number of projects completed	Data on protected and restored historic structures	Individual municipalities	Likely difficult to measure

SUBJECT AREA

NYSERDA Indicator Evaluation

	Evaluation Criteria (Weight)					
Indicator	**Consistent with NYSERDA Guidance (3)**	**Consistent with Regional Performance Measure (1)**	**Favored by Stakeholder Group (2)**	**Data Availability (2)**	**Summary Score**	**General Notes**
3A. Land-use Patterns – Per capita land consumption	8	2	5	3	42	NYSERDA Required indicator
8A.Number of Climate Smart Communities within region & Number of certified Climate Smart Communities	6	1	2	3	29	Indicator would be easy to measure, but communities that sign up for this program may not all be actively participating
3C1.Land-use Patterns – Percentage of jobs and housing occurring inside municipal centers	6	2	3	1	28	Need to compile population by "centers." Job data will be difficult to sub-allocate below regional level
3I.Acres protected through DEC and other public, non-profit and private protected lands	5	2	2	3	27	Assumes there is an inventory of purchasers which needs to be compiled from many sources
3B.Percentage of redevelopment: vacant buildings and sites	6	2	3	0	26	Need to determine new build vs. redevelopment, which may be difficult. Information on individual parcels or properties being developed or redeveloped may be problematic, as opposed to square footage data for existing buildings. Not necessarily a good measure of total development.
3J.Land use patterns: housing mix	5	1	2	3	26	Not sure what this really tells us with respect to achieving sustainability.
3C2.Percentage of housing units located within cities and villages that are affordable to low-moderate income households	5	2	1	2	23	Not available for more rural counties. Need to determine "centers"
3D.Housing density (for urban, suburban, and rural)	5	2	2	1	23	Need to define urban vs. suburban vs. rural and do separate calculations. What would be measured here may be more easily measured by looking at the proportion of residents living in population centers
3E.Land-use Patterns – Sprawl-entropy Index	5	2	2	1	23	Need to define urban vs. suburban vs. rural and do separate calculations for each (NYSERDA suggests by census tract level which would be labor intensive). Non-intuitive measure
3F.% living within a 1/4 mile of a park	5	3	2	0	22	Not necessarily a good measure of sustainability as compared to other indicators
Deconcentration of Poverty					0	
Proportion of residents living in existing population					0	
Age Distribution					0	
Number of communities with Comprehensive Plans less					0	
Regional Cooperation					0	
Historic Preservation					0	

SUBJECT AREA

Place-Sourced Indicator Evaluation

	Evaluation Criteria											
	Enrichment of 5 Capitals:											
Indicator	**Natural**	**Built / Manufactured**	**Social**	**Human**	**Financial**	**Diversity**	**Resiliency**	**Life cycle cost and benefit**	**Ability to leverage Story of Place - Innovation "Accelerator"**	**Favored by Stakeholder Group**	**Summary Score**	**General Notes**
3A. Land-use Patterns – Per capita land consumption											0	
3B.Percentage of redevelopment: vacant buildings and											0	
3I.Acres protected through DEC and other public,											0	
3C1.Land-use Patterns – Percentage of jobs and											0	
8A.Number of Climate Smart Communities within											0	
3F.% living within a 1/4 mile of a park											0	
3J.Land use patterns: housing mix											0	
3C2.Percentage of housing units located within cities											0	
3D.Housing density (for urban, suburban, and rural)											0	
3E.Land-use Patterns – Sprawl-entropy Index											0	
Proportion of residents living in existing population centers	1	1	1	1	1	1	1	1	2	5	15	Variation of NYSERDA indicator 3.E; easier measure of smart growth (sprawl entropy) with respect to reducing infrasture investments for new development/redevelopment, etc.
Deconcentration of Poverty	0	1	1	1	1	1	1	1	1	5	13	Addresses most of the five capitals; good indicator of community prosperity. Need to decide whether to look at poverty rate by % of households, by individuals, etc. and how to format and index the measure
Number of communities with Comprehensive Plans less than 5 years old	1	1	1	1	1	1	1	1	2	2	12	Labor intensive; would have to contact planning agencies and local municipalities. Likely good indicator of municipal commitment to sustainability and for local adoption of improved zoning or other regulations for smart growth
Age Distribution	0	0	1	1	1	1	1	0	2	4	11	Must decide how to break out by age group, such as under 25, over 65, etc. (how do you make this a metric; need to decide how to format and index this measure). Good indicator of vibrancy and diversity of local economy for job availablity and ability to attract and retain younger people (creative potential)
Regional Cooperation	1	1	1	0	1	0	1	1	1	3	10	Labor intensive; would need to gather data from individual communities and agreements may differ from place to place. Not all may be oriented for sustainability.
Historic Preservation	0	1	1	0	1	1	0	1	2	2	9	Likely difficult to measure

LAND USE
Recommended INDICATORS

NYSERDA Indicators	Description	Calculation	Data Required/Source	Baseline Value (2010)	General Notes
3A. Land-use Patterns – Per capita land consumption	Assessment of land consumption	Total amount of land developed divided by population of the region	Total acres of land developed from MRLC National Land Cover Database / population	9.9%	NYSERDA required. The total acres of developed land on map included "developed open space". Developed open space is defined to include areas with a mixture of some structures and impervious surfaces (less than 20% of total cover) and mostly vegetation in the form of lawn grasses. These areas most commonly include large lot residential, parks, golf courses, etc. They are areas that have been impacted by development or cleared and replanted in some manner.
Place-Sourced Indicators	**Description**	**Calculation**	**Data Required/Source**	**Baseline Value (2010)**	**General Notes**
Rate of Poverty	Measures the reduction in the concentration of poverty in the region	Poverty rate by geography	Census data for poverty levels	13.2%	Addresses most of the five capitals; good indicator of community prosperity. Looked at poverty rate by % of individuals by place. Comparison is between places (developed centers) and surrounding area. Based on the percentage of persons with income in the past 12 months below the poverty level. Data derived from the American Community Survey 5-year estimates (2007 - 2011). Population centers include cities, villages and places that are well defined in geographic layout, include a mix of uses (commercial and civic mixed with residential), and have distinct edges.
Proportion of residents living in existing population centers	Measures population density relative to land consumption	Population in centers divided by total population	Census data for population centers	35.9%	Variation of NYSERDA indicator 3.E; easier measure of smart growth (sprawl entropy) with respect to reducing infrasture investments for new development/redevelopment, etc. Uses the same definition of places used for poverty indicator. List of places will be included in appendix. Population based on American Community Survey 5-year estimate (2007 - 2011).

Materials/Waste Management Indicators

MATERIALS AND WASTE MANAGEMENT
POTENTIAL INDICATORS

Indicator	Description	Calculation	Data Required	Data Availability	General Notes
Total regional and per capita solid waste generated per year	This indicator provides an overall view of the region's (and "extra"-region's) contribution to waste, including municipal solid waste (MSW), industrial, construction and demolition, and bio-solid waste.	MSW + Industrial + C&D + Bio Solids + Hazardous) per municipality in region per year [Solid waste generated per capita = total regional solid waste generated per year / regional population] [Note: Important to include waste coming into the region]; Similar calculation needs to be developed for per capita	Total MSW, industrial solid waste, C&D, bio-solids, and hazardous waste generated and imported per year; Population of region	Data is available, but needs to be gathered and summarized	This is a critical, baseline data need that will need to be developed with thoughtful analysis, using best-practices from other communities that have developed a sound methodology for capturing the measure of waste generated at the source. Again, it needs to be noted that for this indicator and others below, the amount of waste entering the region from other regions has to be a major factor of consideration.
Total reduction in materials usage	This indicator provides a view of the reduction of material before it enters the waste stream to be managed.	Establish a baseline regional waste generation number as noted above [including waste coming into the region]; Monitor number for period of time tracking and subtracting materials reused, recycled, composted, and disposed	Total MSW, industrial solid waste, C&D, bio-solids, and hazardous waste generated and imported per year; Total regional solid waste that is reused, recycled, composted (diverted), and disposed per year; Population of region	Data is available, but needs to be gathered and summarized	It is important to note that this number needs to capture materials reduced through measures such as policy initiatives (source reduction, product stewardship, etc.), materials reused in unique manners (such as through a shadow economy), and items recycled and reused--all based on the agreed upon baseline waste generation number.
Total regional solid waste diverted after reduction (not landfilled, incinerated, or exported) per year / population of region	This indicator provides a view to the effectiveness of recycling and sustainable discard management initiatives.	Total regional solid waste diverted (not landfilled, incinerated, or exported) per year / population of region [important to calculate a diversion per capita]	Total regional solid waste generated and imported per year; Total regional solid waste that is diverted per year (including diverted out of the region); Population of region	Data is available, but needs to be gathered and summarized	See notes for indicator directly above.
Total waste by category	This indicator provides the ability to look at each component of the waste/discard street and develop sustainable strategies for each category/commodity.	MSW + Industrial + C&D + Bio Solids + Hazardous) per municipality in region per year; Include waste coming into the region; [Solid waste generated per capita = total regional solid waste generated per year / regional population] -- Broken down into at least 12 categorical types	Total MSW, industrial solid waste, C&D, bio-solids, and hazardous waste generated and imported per year by categorical type Include waste coming into the region	Data availability is unknown	A good starting point is the recognized, general 12-categories of waste, but a thorough waste characterization study diving into subcategories of commodities will be essential.
Cost of waste management method per metric ton of waste	This indicator provides an opportunity to evaluate the cost-benefit of various solid waste management options.	Need to develop	Need to develop, but will include not only actual costs, but an evaluation of externality and projected future costs and benefits	Data availability is unknown	A difficult part of this task will be to capture externality costs (e.g., landfill post-closure and maintenance, sewage treatment plan upgrades due to landfill leachate management, public health implications and costs of waste disposal facilities).
Increase in recycling efficiency	This indicator provides the ability to look at specific materials handling processes at the source of generation/processing to further identify "lean" solutions to maximize recycling efficiency.	Need to develop	Need to develop (will be difficult to acquire)	Data availability is unknown	This will be unique indicator for the Finger Lakes Region if adopted.
Percentage of recycled content in locally manufactured products	This indicator provides a view to the effectiveness of local manufacturers/manufacturing in material reuse, is a measure of economic development, and helps reframe the regional economic baseline (supporting role of recycling infrastructure/systems).	Need to develop (but very difficult to do)	Not readily available, and difficult to acquire	Data availability is unknown	This is a cutting-edge concept for the Finger Lakes Region to consider. It would be an indicator not likely to be considered by other regions, but that does not imply it is not important.
Rate in which landfills are being filled	This indicator provides a view to the need for more effective recycling and solid waste management options.	Will need to establish a baseline; this calculation is related to a number of other indicator calculations noted above	Data from other indicators above; baseline data (baseline year) needs to be established	Data availability is unknown	This is essential to know, as it also implies a concern about future disposal capacity and development plans.
Number of patents related to sustainable products and material flows	This indicator provides a view about how the recycling loop is being closed regionally, and is a measure of local economic development.	Need to develop	Need to identify data sources	Data availability is unknown	Another very unique indicator for the Finger Lakes Region to consider--not widely considered.
Total amount of bio byproducts land applied	This indicator provides a mechanism to track sustainable solutions to one of the largest components of the waste stream (i.e.., sludges), and to track nutrient flow (optimizing the capture of nutrients).	Bio solids per municipality in region per year land applied	Total bio solids generated per year; total bio solids land applied per year	Data is available, but needs to be gathered and summarized	This is important for this region due to the large number of organics/bio solids disposed in the region.
Total transport and disposal (T&D) costs per year	This indicator provides a view of the amount of waste materials exported that could be sustainably managed locally.	Need to develop	Very difficult to acquire	Data availability is unknown	Again, externality costs will need to be included, but that is a very difficult task.

MATERIALS AND WASTE MANAGEMENT

NYSERDA Indicator Evaluation

	Evaluation Criteria (Weight)					
Indicator	**Consistent with NYSERDA Guidance (3)**	**Consistent with Regional Performance Measure (1)**	**Favored by Stakeholder Group (2)**	**Data Availability (2)**	**Summary Score**	**General Notes**
Total solid waste generated per capita	6	3	5	1	33	
Total reduction in materials usage	6	0	5	1	30	
Total waste by category	6	0	4	0	26	
Total regional solid waste diverted (not landfilled, incinerated, or exported) per year	4	0	5	1	24	
Cost of waste management method per metric ton of waste	5	0	4	0	23	
Increase in recycling efficiency	0	0	4	0	8	
Percentage of recycled content in locally manufactured products	0	0	4	0	8	
Rate in which landfills are being filled	0	0	4	0	8	
Number of patents related to sustainable products and material flows	0	0	3	0	6	
Total amount of bio byproducts land applied	0	0	3	1	8	
Total transport and disposal (T&D) costs per year	0	0	3	0	6	

MATERIALS AND WASTE MANAGEMENT

Place-Sourced Indicator Evaluation

	Evaluation Criteria											
Indicator	**Enrichment of 5 Capitals: Natural**	**Enrichment of 5 Capitals: Built /Manufactured**	**Enrichment of 5 Capitals: Social**	**Enrichment of 5 Capitals: Human**	**Enrichment of 5 Capitals: Financial**	**Diversity**	**Resiliency**	**Life cycle cost and benefit**	**Region's ability to leverage its unique Story of Place - Innovation "Accelerator"**	**Favored by Stakeholder Group**	**Summary Score**	**General Notes**
Total reduction in materials usage	1	1	1	1	1	1	1	1	2	5	15	Because it is a solution-based approach, it received "enrichment of capital" scores.; recommendeed NYSERDA indicator
Total regional solid waste diverted (not landfilled, incinerated, or exported) per year	1	1	1	1	1	1	1	1	2	5	15	Because it is a solution-based approach, it received "enrichment of capital" scores.
Increase in recycling efficiency	1	1	1	1	1	1	1	1	2	4	14	Because it is a solution-based approach, it received "enrichment of capital" scores.
Percentage of recycled content in locally manufactured products	1	1	1	1	1	1	1	1	2	4	14	Because it is a solution-based approach, it received "enrichment of capital" scores.
Number of patents related to sustainable products and material flows	1	1	1	1	1	1	1	1	2	3	13	Because it is a solution-based approach, it received "enrichment of capital" scores.
Total amount of bio byproducts land applied	1	1	1	1	1	1	1	1	0	3	11	Because it is a solution-based approach, it received "enrichment of capital" scores.
Total solid waste generated per capita	0	0	0	0	0	0	0	0	0	5	5	Because it is not a solution-based indicator, it did not receive "enrichment of capital" scores; recommended NYSERDA indicator
Total waste by category	0	0	0	0	0	0	0	0	0	4	4	Because it is not a solution-based indicator, it did not receive "enrichment of capital" scores; recommended NYSERDA indicator
Cost of waste management method per metric ton of waste	0	0	0	0	0	0	0	0	0	4	4	Because it is not a solution-based indicator, it did not receive "enrichment of capital" scores.
Rate in which landfills are being filled	0	0	0	0	0	0	0	0	0	4	4	Because it is not a solution-based indicator, it did not receive "enrichment of capital" scores.
Total transport and disposal (T&D) costs per year	0	0	0	0	0	0	0	0	0	3	3	Because it is not a solution-based indicator, it did not receive "enrichment of capital" scores.

MATERIALS AND WASTE MANAGEMENT
Recommended INDICATORS

NYSERDA Indicators	Description	Calculation	Data Required/Source	Baseline Value (2010)	General Notes
Total regional and per capita solid waste generated per year	This indicator provides an overall view of the region's (and "extra"-region's) contribution to waste, including municipal solid waste (MSW), industrial, construction and demolition, and bio-solid waste. It is listed as a NYSERDA indicator because it is directly related to 4A Common Indicator.	MSW + Industrial Non-Hazardous + C&D + Bio Solids) per municipality in region per year [solid waste generated per capita = total regional solid waste generated per year / regional population] [Note: Important to include waste coming into the region]	Total MSW, industrial non-hazardous solid waste, C&D, bio-solids, and tires generated and imported per year; Population of region. Sources: County and regional solid waste management authorities (planning units); NYS DEC	**Municipal Solid Waste :** 5,392,001 tons **Non-hazardous Industrial Waste :** 217,688 tons **C&D Waste Generated:** 1,088,442 to 2,809,957 tons **Biosolids (Sewage Sludge):** 22,214 tons **Tires Generated:** 13,378 tons **Total Solid Waste Received by Landfills in the Finger Lakes Region:** 5,064,414.34 tons	The baseline values here have been calculated using an "industry-standard" approach. This is a critical data need that will have to be further developed to include some non-hazardous industrial/commercial waste that may be unique to the Region and discern how much waste entering Region disposal facilities (i.e., landfills)is coming from outside the region. An intensive effort with the support of the State of New York will need to ensue to secure information from private landfills regarding an accurate accounting of incoming waste from outside the region. Last, there are other wastes for which baseline values might have to be developed depending on whether they become target items for planning purposes. These include but are not limited to: Carcasses, Manure and other Agricultural Waste; Regulated Medical Waste; and Industrial Hazardous Waste.
Total reduction in materials usage	This indicator provides a view of the reduction of material before it enters the waste stream to be managed. It is listed as a NYSERDA indicator because it is directly related to 4B Common Indicator.	Establish a baseline regional waste generation number as noted above [including waste coming into the region]; Monitor number for period of time tracking and subtracting materials reduced from disposal or from the need for recycling and composting	2010 Baseline Data Value of total MSW, industrial non-hazardous solid waste, C&D, bio-solids, and tires generated and imported per year; Starting in a target year (i.e., 2013), identify total regional solid waste that is reduced per year; Need population of region and accurate reduction numbers from planning units. Sources: County and regional solid waste management authorities (planning units); NYS DEC	**Municipal Solid Waste :** 5,392,001 tons **Non-hazardous Industrial Waste :** 217,688 tons **C&D Waste Generated:** 1,088,442 to 2,809,957 tons **Biosolids (Sewage Sludge):** 22,214 tons **Tires Generated:** 13,378 tons **Total Solid Waste Received by Landfills in the Finger Lakes Region:** 5,064,414.34 tons	Baseline values have been established as noted above (tons of waste generation in the region, etc.), but it is important to note that the reduction numbers/values for this indicator need to capture materials reduced through measures such as policy initiatives (source reduction, product stewardship, etc.), and materials reused in unique manners (such as through a shadow economy)--all based on an agreed upon and accurate baseline waste generation numbers as noted above, and yet to be created regional data calculations and capture mechanisms focused on quantifying the amount of reduction in the baseline waste generation values.
Total waste by category	This indicator provides the ability to look at each component of the waste/discard street and develop sustainable strategies for each category/commodity. It is listed as a NYSERDA indicator because it is directly related to 4A and 4B Common Indicators.	MSW + Industrial + C&D + Bio Solids + Hazardous) per municipality in region per year; Include waste coming into the region; [Solid waste generated per capita = total regional solid waste generated per year / regional population] -- Broken down into at least 12 categorical types	Total MSW, industrial non-hazardous solid waste, C&D, bio-solids, and tires generated and imported per year by categorical type Include waste coming into the region. Sources: County and regional solid waste management authorities (planning units); NYS DEC	*Baseline values for this indicator are calculated using the projected total tons of waste generated.* **MSW** (5,392,001 total tons projected as generated in 2010) -- Paper 1,758,332 tons (32.61%), Metal 371,509 (6.89%), Plastics 757,576 (14.05%), Glass 236,170 (4.38%), Organics 1,222,906 (22.68%), Textiles 279,306 (5.18%), Wood 188,181 (3.49%), Miscellaneous (household hazardous waste, some C&D, electronics, durables, etc.) 578,562 (10.73%) [These numbers derived from local data provided by Finger Lakes Region planning units to the NYS DEC]; **Industrial Non-Hazardous Wastes** -- 217,688 tons ; **C&D Debris** -- 1,088,442 to 2,809,957 tons ; **Bio-solids** -- 22,214 tons; **Tire**s -- 13,378 tons	A thorough waste characterization study diving into subcategories of commodities will be essential for future planning purposes. In addition, when baseline data is developed as noted above for materials coming into regional landfills from outside the Finger Lakes Region, that data set will need to be broken down by category similar to those noted in the baseline value description here.
Place-Sourced Indicators	**Description**	**Calculation**	**Data Required/Source**	**Baseline Value (2010)**	**General Notes**
Total regional solid waste diverted after reduction (not landfilled, incinerated, or exported) per year / population of region	This indicator provides a view to the effectiveness of recycling and sustainable discard management initiatives. It is listed as a NYSERDA indicator because it is directly related to 4B Common Indicator.	Total regional solid waste diverted (not landfilled, incinerated, or exported) per year / population of region [important to calculate a diversion per capita]	Total regional solid waste generated and imported per year; Total regional solid waste that is diverted per year (including diverted out of the region); Population of region. Sources: County and regional solid waste management authorities (planning units); NYS DEC.	**Baseline Value Based on 2010 Population:** 1,217,156; recovered materials: 197,938.87 tons; **Projected 2010 Regional Municipal Solid Waste Generated in the Region:** 5,392,001 tons; **Estimated 2008 Non-hazardous Industrial Waste Generated:** 217,688 tons; **Estimated 2008 C&D Waste Generated:** 1,088,442 to 2,809,957 tons; **Estimated 2008 Biosolids (Sewage Sludge) Generated:** 22,214 tons; **Estimated 2008 Tires Generated:** 13,378 ton ; **Total Solid Waste Received by Landfills in the Finger Lakes Region (2008):** 5,064,414.34 tons; **MSW Materials Recycled in Region (2008):** 197,930 tons (from data provided by planning units in the Finger Lakes Region to the NYS DEC.]	It is important to note that the baseline value also needs to capture materials reduced through measures such as policy initiatives (source reduction, product stewardship, etc.), materials reused in unique manners (such as through a shadow economy), and items recycled and reused--all based on the agreed upon baseline waste generation number. It is recommended that 2013 be the base year to collect data on reduction, reuse, composting and recycling, using the 2008/2010 baseline numbers as a starting point.

Water Management Indicators

WATER MANAGEMENT
POTENTIAL INDICATORS

Indicator	Description	Calculation	Data Required	Data Availability	General Notes
Total Number of Impaired Waters	the number waters that do not support appropriate uses and that may require development of a Total Maximum Daily Load (TMDL)	Σ bodies of water in region listed in part 1 and 2 of NYDEC Section 303(d)	Total number of impaired waters	NYSDEC - http://www.dec.ny.gov/chemical/31290.html	Modifications of this indicator seemed to be favored by the group
% of beach WQ samples exceeding state thresholds	tracks the overall quality of water at several beaches	None required.	statistics of water quality samples at select beaches	% of WQ samples at beaches exceeding standards http://www.nrdc.org/water/oceans/ttw/ny.asp http://www.actrochester.org/Charts/DataView.aspx?id=6&indicator=106&chart=6.2.2	This measure tracks infromation that is easy to understand. Beaches with available data: Ontario Beach, Durand Beach, Sodus Point Bayside. - Improves 3 of 5 Capitals: Natural, Social, Human - Regional Goals: improves accessibility and connectivity, imporve public health, maintain protect improve water quality, brings region together (shared recreation)
Percentage of impaired waters with TMDL requirements	Characterizes the status of the 303(d) list	(# water bodies in region for which a TMDL is developed) / (Σ bodies of water in region listed in part 1 and 2 of NYDEC Section 303(d))	1. numer of water bodies with TMDL requirements 2. Total number of impaired waters	1. # TMDLs http://www.dec.ny.gov/docs/water_pdf/303dlistpropfnl2012.pdf 2. All Impaired Waters - NYSDEC http://www.dec.ny.gov/chemical/31290.html	This measure is though to be a better inidcator than the number of waterbodies on the list as it considers the DEC's rate of progress in developing TMDLs
Water demand per capita, by sector (Total Withdrawals Fresh, Public Supply Fresh, Domestic from Public Supply, Irrigation Total Fresh)	provides a breakdown of water usage with respect to the population as well as each sector of use.	(Σ Water demands by sector per county) / (total population of region)	1. Category of water use in the region region 2. Population of region	1. USGS Water Use County Data – http://water.usgs.gov/watuse/data/2005/index.html 2. U.S. Census Bureau – Census – http://quickfacts.census.gov/qfd/states/36000.html	These sectors were selected to indicate the general charateristics of water use. Several other individual sectors should be tracked
Concentrations of pollutants in the Finger Lakes - Total Phosphates, Total Nitrogen	Directly tracks the quality of water in many of the most visible bodies of water in the region.	Averages of pollutant levels at surface and lake bottom for Honeoye, Canandaigua, Kueka, Seneca, and Cayuga lakes	Measurements of water quality in the Finger Lakes from the work of John Halfman of Hobart/William Smith	John Halfman studies - http://people.hws.edu/halfman/FL-Lim/FL-Limnology.htm	Other pollutant levels could be tracked. From 2005 to 2012, this data has been collected every year. It is unclear how long this data collection will be continued. Consideration by the FLSP may assist with continuation of these efforts.
Energy use by water and sewer utilities per million gallons supplied or treated	This indicator is correlated to water usage.	(Σ Energy use by water and sewer utilities) / (Σ million gallons supplied or treated)	Public water and wastewater treatment facilities in region	Descriptive Data of Municipal Wastewater Treatment Plants in New York State http://www.dec.ny.gov/docs/water_pdf/descdata2004.pdf	The stakeholders group suggested that this inidctaor be tracked toward energy efficiency
Ratio or water withdrawn to renewable supply	examines the regional water balance – measure of renewable water supply versus consumption.	Renewable water supply – total water consumption	1. Total renewable water supply 2. Total water consumed	1. USGS Water Use - http://water.usgs.gov/watuse/misc/consuse-renewable.html 2. USGS Water Use - http://water.usgs.gov/watuse/data/2005/index.html	
Percentage of Impaired water sources	Surface and ground waters that are negatively impacted by pollution	(# water boaides with identified impairments) / (# water bodies assessed)	list water quality assessments	NYSDEC - WI/PWL (GIS) http://www.dec.ny.gov/chemical/36744.html	This measure is though to be a better inidcator than the number of waterbodies on the list as it considers the DEC's rate of progress in developing this list
Infrastructure reliability and efficiency	quantifies the proportion of water that is produced but not delivered due to of leaks, broken infiltration and inflow, or otherwise inefficient infrastructure.	Total end user water consumption / total water withdrawn from environment	1. Total water withdrawn 2. Total water delivered to consumer	1. Utility data, NYSDEC 2. USGS Water Use - http://water.usgs.gov/watuse/data/2005/index.html	
Number of Sanitary and Combined Sewer Overflows	Annual number of sanitary and combined sewer overflows reported - provides an indication of point source pollution	None required.	Number of Sanitary and Combined Sewer Overflows	Data availability unknown - Local reporting or annual DEC reporting data	This is a valuable indicator, but data collection may require substantial effort. For communities under a DEC consent order, data may be available. Discuss potential data availability with stakeholders.
Total area under conservation agreement per watershed unit-area	provides an overall view of watershed conservation efforts.	Acres of land under conservation agreement / total acres of land within a watershed) x 100	1. Total area under conservation agreement in a watershed region 2. Total area within a regional watershed	(both) NYSDEC regional offices	
Stream buffer width	A wider vegetated stream buffer suggests a healthier, better protected stream	(average buffer width per stream) / (Σ stream length)	1. Average buffer width 2. Total stream length	Data availability unknown	
Number of watershed management plans in region	provides an indication as to the level of interest in protecting water quality	None required.	list of watershed management plans prepared for the region	Data availability unknown	- Improves 1 of 5 Capitals: Natural - Regional Goals: imporve public health, maintain protect improve water quality, brings region together (shared regulation)
Miles of water bodies on the Waterbody Inventory/Priority Waterbodies List	The Waterbody Inventory/Priority Waterbodies List is a statewide inventory (database) of New York State waterbodies which characterizes water quality, the degree to which water uses are supported, progress toward the identification of water quality problems and sources, and activities to restore and protect each individual waterbody.	Σ # miles of listed waterbodies in the Genesee River and the Oswego River/Finger Lakes drainage basins	total number of miles of listed waterbodies	NYSDEC - http://www.dec.ny.gov/chemical/36730.html	This indicator gives more detailed information than the 303(d) list. This calculation will be a bit cumbersome due to the arrnagement of data on the website.
Percentage of impervious coverage in the Finger Lakes and Genesee River watersheds	Impervious coverage has been direclty linked to water quality, particularly when coverages approach 10% in a watershed.	(Σ impervious area in watershed) / (total watershed area)	1. impervious area in watershed 2. total watershed area	none at applicable scale	If the appicable data were readily available, this would be an important indicator.

WATER MANAGEMENT

NYSERDA Indicator Evaluation

	Evaluation Criteria (Weight)					
Indicator	**Consistent with NYSERDA Guidance (3)**	**Consistent with Regional Performance Measure (1)**	**Favored by Stakeholder Group (2)**	**Data Availability (2)**	**Summary Score**	**General Notes**
Water demand per capita, by sector (Total Withdrawals Fresh, Public Supply Fresh, Domestic from Public Supply, Irrigation Total Fresh)	6	1	5	3	35	
Total Number of Impaired Waters	6	3	3	3	33	
Ratio or water withdrawn to renewable supply	5	1	4	3	30	
Energy use by water and sewer utilities per million gallons supplied or treated	5	1	4	1	26	
Number of Sanitary and Combined Sewer Overflows	6	1	3	0	25	
Number of Impaired Waters with Established TMDL Requirements Removed From the program	2	2	5	3	24	
Infrastructure reliability and efficiency	5	1	3	1	24	
% of beach WQ samples exceeding state thresholds	1	3	5	3	22	
Total area under conservation agreement per watershed unit-area	5	1	3	0	22	
Concentrations of pollutants in the Finger Lakes - Total Phosphates, Total Nitrogen	1	2	5	3	21	
Miles of water bodies on the Waterbody Inventory/Priority Waterbodies List	2	2	2	3	18	
Percentage of Impaired water sources	1	2	3	3	17	
Stream buffer width	0	1	4	0	9	
Number of watershed management plans in region	0	1	4	0	9	
Percentage of impervious coverage in the Finger Lakes and Genesee River watersheds	0	1	3	1	9	

WATER MANAGEMENT

Place-Sourced Indicator Evaluation

	Evaluation Criteria											
	Enrichment of 5 Capitals:											
Indicator	**Natural**	**Built / Manufactured**	**Social**	**Human**	**Financial**	**Diversity**	**Resiliency**	**Life cycle cost and benefit**	**Ability to leverage Story of Place - Innovation "Accelerator"**	**Favored by Stakeholder Group**	**Summary Score**	**General Notes**
% of beach WQ samples exceeding state thresholds	1		1	1	1					5	9	This measure tracks infromation that is easy to understand. Beaches with available data: Ontario Beach, Durand Beach, Sodus Point Bayside
Number of Impaired Waters with Established TMDL Requirements Removed From the program	1						1			5	7	
Infrastructure reliability and efficiency		1	1	1					1	3	7	
Number of watershed management plans in region	1		1				1			4	7	
Concentrations of pollutants in the Finger Lakes - Total Phosphates, Total Nitrogen	1									5	6	
Number of Sanitary and Combined Sewer Overflows	1	1	1							3	6	
Stream buffer width	1						1			4	6	
Energy use by water and sewer utilities per million gallons supplied or treated		1			1					4	6	
Total Number of Impaired Waters	1						1			3	5	
Water demand per capita, by sector (Total Withdrawals Fresh, Public Supply Fresh, Domestic from Public Supply, Irrigation Total Fresh)										5	5	
Percentage of Impaired water sources	1						1			3	5	
Miles of water bodies on the Waterbody Inventory/Priority Waterbodies List	1		1	1			1			1	5	
Percentage of impervious coverage in the Finger Lakes	1			1						3	5	
Ratio or water withdrawn to renewable supply										4	4	
Total area under conservation agreement per watershed unit-area	1									3	4	

WATER MANAGEMENT
Recommended INDICATORS

NYSERDA Indicators	Description	Calculation	Data Required/Source	Baseline Value (2010)	General Notes
Water demand per capita, by sector (Total Withdrawals Fresh, Public Supply Fresh, Domestic from Public Supply, Irrigation Total Fresh)	provides a breakdown of water usage with respect to the population as well as each sector of use.	(Σ Water demands by sector per county) / (total population of region)	1. Category of water use in the region: USGS Water Use County Data – http://water.usgs.gov/watuse/data/2005/index.html 2. Total Polpulation of Region: U.S. Census Bureau – http://quickfacts.census.gov/qfd/states/36000.html		(Mgal/day per 1000 people) The baseline data presented is from 2005. 2010 data is not yet published.
Total withdrawals, fresh, in Mgal/d per 1000 people			see above	0.677	
Public Supply, total withdrawals, fresh, in Mgal/d per 1000 people			see above	0.097	
Domestic, deliveries from Public Supply, in Mgal/d per 1000 people			see above	0.084	
Irrigation, total withdrawals, fresh, in Mgal/d per 1000 people			see above	0.008	
Total Number of Impaired Waters	the number waters that do not support appropriate uses and that may require development of a Total Maximum Daily Load (TMDL)	Σ bodies of water in region listed in part 1 and 2 of NYDEC Section 303(d)	Total Number of Impaired Waters NYSDEC - http://www.dec.ny.gov/chemical/31290.html	49	
Place-Sourced Indicators	**Description**	**Calculation**	**Data Required/Source**	**Baseline Value (2010)**	**General Notes**
% of beach WQ samples exceeding state thresholds	tracks the overall quality of water at several beaches	None required.	% of WQ samples at beaches exceeding standards http://www.nrdc.org/water/oceans/ttw/ny.asp http://www.actrochester.org/Charts/DataView.aspx?id=6&indicator=106&chart=6.2.2	17%	2011 data
Percentage of impaired waters with TMDL requirements	Characterizes the status of the 303(d) list	(# water bodies in region for which a TMDL is developed) / (Σ bodies of water in region listed in part 1 and 2 of NYDEC Section 303(d))	1. # TMDLs http://www.dec.ny.gov/docs/water_pdf/303dlistpropfnl2012.pdf 2. All Impaired Waters - NYSDEC http://www.dec.ny.gov/chemical/31290.html	6%	This measure is though to be a better inidcator than the number of waterbodies on the list as it considers the DEC's rate of progress in developing TMDLs
Concentrations of pollutants in the Finger Lakes - Total Phosphates, Total Nitrogen	Directly tracks the quality of water in many of the most visible bodies of water in the region.	Averages of pollutant levels at surface and lake bottom for Honeoye, Canandaigua, Kueka, Seneca, and Cayuga lakes	Measurements of water quality in the Finger Lakes from the work of John Halfman of Hobart/William Smith http://people.hws.edu/halfman/FL-Lim/FL-Limnology.htm	TP = 13.5 µg/L TN = 0.4 mg/L	These statistics are the averages of pollutant concentrations at the surface and lake bottoms for Honeoye, Canadaigua, Kueka, and Seneca Lakes.

Economic Development Indicators

ECONOMIC DEVELOPMENT
POTENTIAL INDICATORS

Indicator	Description	Calculation	Data Required	Data Availability	General Notes
Housing + Transportation Index : Transportation/Housing affordability	NYSERDA required indicator 6A: Percentage of household income spent on housing and transportation	Household income spent on Housing and Transportation divided by total household income	H+T Affordability Index	Center for Neighborhood Technology (http://htaindex.cnt.org/)	
Jobs created by sector	NYSERDA common indicator 6B: Increase or decrease in nonfarm jobs by sector over a one month period not seasonally adjusted	Jobs Created = Σ Jobs created by county = Change in total private sector jobs + Change in total government sector jobs + Change in farm jobs	Change in total jobs	Bureau of Labor Statistics and NYS Labor Department (updated quarterly)	FL REDC & ACT Rochester indicator: The growth or decline in total jobs, shown as a percentage gain or loss from the previous year.
Unemployment rate	NYSERDA common indicator 6C: Unemployment rate by county; Unemployment rates are a relatively timely indicator of current local economic conditions, particularly recent changes in the employment landscape that reflect the overall health of the economy.	Unemployment Rate = (Unemployed Workers / Total Labor Force) * 100	Unemployment rate by county	Bureau of Labor Statistics and NYS Labor Department (updated quarterly)	Data updated every year for large communities, less frequently for smaller
Average weekly wages by county	NYSERDA common indicator 6D: Average weekly wages by County	Total quarterly wages by county divided by the average 3 month county employment levels divided by 13 (weeks in a quarter)	Average Annual Weekly Wages by County	Quarterly Census of Employment and Wages (http://www.bls.gov/cew/) http://data.bls.gov/pdq/querytool.jsp?survey=en In the query window, select: New York State – County X – Total, all industries – Total covered – Average Weekly Wage.	Data adjusted to 2012 dollars
Acreage of farms	NYSERDA common indicator 6E: Area of land used for growing crops and rearing animals, typically under control of one owner or manager.	Sum of acreage of land used for farming and livestock	Area of land used for growing crops and rearing animals, typically under control of one owner or manager.	NYS Office of the State Comptroller (see 2010 report) http://www.osc.state.ny.us/reports/other/agriculture21-2010.pdf	Updated infrequently
Production of farms	NYSERDA common indicator 6E: Cash receipts by county from farm marketings	Sum of cash receipts from Farm production	Cash receipts by county from farm marketings	USDA National Agricultural Statistics Service Annual Statistical Bulletin http://www.nass.usda.gov/Statistics_by_State/New_York/Publications/Annual_Statistical_Bulletin/2011/2011%20page90%20-%20Cash%20Receipts%20County%20Estimates.pdf	
Annual Revenue from local businesses	NYSERDA secondary indicator 6F: Revenue generated from businesses with headquarters and/or primary locations in the Region. The Business Alliance for Local Living Economies has proposed a methodology for defining local (http://www.livingeconomies.org/local-first-defining-local).	Regional retail sales at specialty stores – Regional retail sales at specialty chain merchants = Regional retail sales remaining to local independent merchants	Revenue generated from businesses with headquarters and/or primary locations in the Region.	Previous studies have used sources such as Claritas and analysis of public filings and trade journals.	
Relationship of wages to changes in employment	NYSERDA secondary indicator 6G: Types of jobs/wage earning opportunities being created in the Region.	Percentage change in weekly wages by sector annually.;Percentage change in employment by sector	Percentage change in weekly wages by sector.; Percentage change in employment by sector.	Department of Labor Sector/Wage Data	
Number of farmers markets	NYSERDA secondary indicator 6H: Number of seasonal farmers markets within the region	Sum of regional farmers markets	Number of farmers markets	GIS as available from Counties and NYS (farmers market layers); general farmers market listings	
Total number of visitors and regional tourism dollars spent	NYSERDA secondary indicator 6I: Number of visitors to the region; NYSERDA secondary indicator 6I: Amount	Sum of total visitors to the region and sum of total dollars spent by those visitors	Total visitors to region; Total dollars spent by visitors to region	NYS Department of Economic Development, County Tourism Departments	
Jobs and housing balance	NYSERDA secondary indicator 6J: Measures the ratio of jobs to housing in the Region	Jobs and Housing Balance = Number of jobs in the region / number of housing units in the region.	Number of jobs; Number of Housing Units	US Census Bureau - Economic Census and Annual Economic Surveys; NYS Department of Economic	
GINI Index	NYSERDA secondary indicator 6K: Measures the distribution of income within a region		GINI Index (at County and regional scale)	2010 Census; 2006-2010 American Community Survey	
Investment in infrastructure (transportation, drinking water and wastewater facilities, stormwater, and energy)	NYSERDA secondary indicator 6L: Track resources dedicated to improving aging infrastructure	Annual capital expenditures into the various forms of infrastructure listed for the region	Total Investment Dollars - by infrastructure/subject area	GFLRPC; Town, village, city, and county planning and transportation departments; NYSERDA; Capital District Transportation Committee (CDTC) and Capital District Transportation Authority (CDTA); TriState Transportation Campaign	
Economic Activity: Gross Regional Product	NYSERDA secondary indicator 6M: Market value of final goods and services produced within the region	Total market value of all final goods and services within the region annually	GRP, with breakdown by largest sectors, (potentially including biotech, IT, manufacturing or other REDC target industries)	US Department of Commerce, Bureau of Economic Analysis; NYS Economic Development Council; or IMPLAN ($350 cost per County for data)	
Tax Policy and Incentives – Percent of municipalities with tax policies and incentives to encourage development in municipal centers	NYSERDA secondary indicator 8D: Percent of municipalities with tax policies and incentives to encourage development in municipal centers	Total number of region's municipalities with tax policies and incentives / total number of region's municipalities	Total Number of region's municipalities with tax policies and incentives	Gather from individual municipalities	
Net advocate score	FL REDC indicator: Derived from a survey conducted on behalf of Wegmans Food Markets in which individuals where asked: "how likely would you be to recommend your community to friends, family or co-workers?"		Survey	FLREDC	
Annual growth in total employment	FL REDC indicator: Total year-over-year net employment growth	Change in employment compared to previous year's employment level	Total year-over-year net employment growth	Economic Modeling Specialists Inc. (EMSI) RBA & GRE	
New business establishments as a share of established firms	FL REDC indicator: New establishments as a share of established firms	Number of new business establishments divided by the total number of business establishments	New establishments as a share of established firms	Economic Modeling Specialists Inc. (EMSI) RBA & GRE	
Formation and expansion of minority- and women-owned business establishments (W/MBE)	FL REDC indicator: Formation and expansion of minority- and women-owned business establishments (W/MBE)	Number of new minority and women-owned businesses compared to previous period's number of minority and women-owned businesses	Formation and expansion of minority- and women-owned business establishments (W/MBE)	National EstablishmentTime-Series (NETS) database. RBA & GRE	
Share lacking health insurance coverage	FL REDC indicator: Percent of the population not covered by health insurance	Number of residents lacking health insurance coverage divided by total number of residents	Percent of the population not covered by health insurance	U.S. Bureau of the Census FLHSA	

Indicator	Description	Calculation	Data Required	Data Availability	General Notes
Earnings per job	FL REDC indicator	Total wages for the region divided by the average employment for the period	Earnings per Job	Economic Modeling Specialists Inc. (EMSI) RBA & GRE	
Participation in culture/recreation	FL REDC indicator: Number of patrons/visitors to cultural and recreational institutions	Sum of patrons/visitors to cultural and recreational institutions	FL REDC indicator: Number of patrons/visitors to cultural and recreational institutions	Finger Lakes Tourism	
Age-Sex-Race Adjusted Medicare Spending Per Beneficiary	FL REDC indicator: Medicare spending per beneficiary adjusted to Age-Sex-Race	Total amount of spending for each category being tracked divided by the number of beneficiaries in that category	Medicare spending per beneficiary adjusted to Age Sex-Race	FLHSA	
Commercial Insurance: Per member per month outpatient cost	Outpatient cost per commercially insured per month	Total commercial insurance outpatient costs per month divided by the number of commercially insured plan participants	Medicare spending per beneficiary adjusted to Age Sex-Race	Dartmouth Atlas for Health Care and the Milliman Inc. report to the Institute for Healthcare Improvement FLHSA	
Age distribution of workers	ACT Rochester indicator: The change, expressed as a percentage, of the number of people in selected age groups within the resident working-age population.	Number of workers in each age group divided by the total number of workers in the region * 100 compared to previous period	Employment data including ages	Bureau of Labor Statistics and NYS Labor Department (updated quarterly)	
Maintaining our Main Streets					
Measure disposable income	The amount of money that households have available for spending and saving after income taxes have been accounted for.	Total income minus all income taxes	Total income and total income taxation	IRS, NYS Department of Labor and NYS Department of Taxation	
Number of people receiving social services	Total number of people receiving public assistance in the region	Total number of people receiving public assistance in the region	Total number of people receiving public assistance in the region	NYS Department of Social Services	
Job training programs	Number of job training programs in the region	Number of job training programs in the region	Number of job training programs in the region		
Number of firms and employees (types of businesses) – 10+ employees – impact on region based on employment (net formation and survival)	Measure of new, small business creation and survival	Number of small businesses with 10+ employees in the region along with the sum of their total employment, wages and regional domestic product produced compared to the total region wages and regional domestic product	Number of small businesses with 10+ employees in the region along with the sum of their total employment, wages and regional domestic product produced compared to the total region wages and regional domestic product		
Business locations where infrastructure already exists	Indication of smart growth practices - is business being clustered around existing infrastructure or is sprawl taking place?	Parameters would need to be defined	Business locations, definition of acceptable proximity to existing infrastructure, definition of what infrastructure applies (transportation, utilities, existing expansion capacity, agricultural, etc.)	Would appear to require a lot of primary data gathering	
Measure of diversity	Measure of the diversity of businesses, products and services offered in the region		listing of all unique businesses, products and services throughout the region	Would appear to require a lot of primary data gathering	My recollection is that this measure is intended to indicate how economically diverse and resilient the region is, in contrast to the all eggs in one basket situation of a few, very large regional employers (a.k.a Kodak)
Number of vocational graduates	Measure of workforce pursuing vocational employment	Total of all regional vocational program graduates, comparison to previous years to determine if interest is increasing or decreasing	Vocational graduation rates	Vocational schools/program providers	
STEM programs – partnership with industries	Measure of how effectively STEM program are being integrated and leveraged with local industries	Number of regional STEM programs that partner with local industries	Number of regional STEM programs that partner with local industries	STEM program providers, educational institutions	
Funding opportunities					
Track number of flood events – loss of property value	Measure of impact of climate change on loss of property value	Total property damage claims resulting from regional flood events	Total property damage claims resulting from regional flood events	Insurers	
Where visitors are coming from	Indication of the geographic draw of our region relating to tourism and recreation	List of places of origin of visitors to the region	List of places of origin of visitors to the region	Tourism, convention and visitors bureaus. May require additional data collection	
Infrastructure development vs. re-development funding – land use, planning, ROI	Funding spent on reconstruction and revitalization of existing infrastructure vs new infrastructure - sprawl indicator	Total funding spent on reconstruction or revitalization of existing infrastructure compared to that spent on new infrastructure	Total funding spent on reconstruction or revitalization of existing infrastructure compared to that spent on new infrastructure	State and local governments and authorities capital infrastructure spending	
Investment in research	Measure of investment in research and innovation in the region	Sum of government, institutional and private investment in research and development in the region	Sum of government, institutional and private investment in research and development in the region	Government and institutions. Private data may be more difficult to collect	
Venture capital investment	Measure of new venture capital in the Region	Total venture capital investment in the region	Total venture capital investment in the region	National Venture Capital Association	
Change in Number of Business Establishments by sector	The change in the number of business establishments by sector, shown as a percentage gain or loss.	Current number of businesses by sector minus number of businesses by sector in previous period divided by total number of businesses by sector in previous period x100	Number of businesses by sector in current period and previous period(s)		
Average salary by sector	Salaries are a gauge of overall economic health and a measure of the degree to which employees are sharing in the prosperity of a community or specific economic sector. They also indicate the vitality of specific sectors and the demand for workers in those sectors	Total payroll by sector divided by total employment in sector. Comparisons may be made between sectors and between time periods to determine trends and more desirable sectors, etc.	Total payroll by sector, employment by sector in current period and previous period(s)	Quarterly Census of Employment and Wages (http://www.bls.gov/cew/) http://data.bls.gov/pdq/querytool.jsp?survey=en	Data have been converted to 2010 dollars.
Change in Average Salary since 2000	ACT Rochester indicator: The cumulative percentage change in average salary since 2000 - measure of the change in wealth generation	Current average salaries minus 2000 salaries divided by 2000 salaries (adjusted for inflation)	Current average salaries, average salaries in 2000	Quarterly Census of Employment and Wages (http://www.bls.gov/cew/) http://data.bls.gov/pdq/querytool.jsp?survey=en	Data have been converted to 2010 dollars.
Employment-to-Population Ratio	ACT Rochester indicator: Measure of the employment rate of the regional working-age population	The number of employed people living in our region divided by the population of 16- to 64-year-olds	Number of employed people in the region, population of working-age residents	Census and American Community Survey	
Spending for County Government	ACT Rochester indicator: Measure of the cost of government	The annual per-capita spending for county government, adjusted for inflation.	Annual spending of county governments, population of counties	Census and county governments	Data are presented in constant 2010 dollars. New York State excludes New York City
Spending for Local Government	ACT Rochester indicator: Measure of the cost of government	The annual per-capita spending for cities, towns, and villages within a county, adjusted for inflation	Annual spending of city, town and village governments; population	Census and local governments	Data are presented in constant 2010 dollars. New York State excludes New York City

Indicator	Description	Calculation	Data Required	Data Availability	General Notes
Spending for School Districts	ACT Rochester indicator: Measure of the cost of education	The annual per-capita spending for local public education within a county, adjusted for inflation	Total annual spending for public education by county.	Educational institutions, NYS SED	Data are presented in constant 2010 dollars. New York State excludes New York City
Science and Engineering Research	ACT Rochester indicator: The amount of federal, state and local grant money spent on research and development by academic institutions in the region				Figures were inflation-adjusted to 2010 dollars. Not all institutions report research and development expenditures. Institutions included in data for the region are University of Rochester, Rochester Institute of Technology, SUNY College at Geneseo, SUNY College at Brockport and Hobart and William Smith Colleges.
Residential Building Permits	ACT Rochester indicator: Measure of Housing growth	The number of residential building permits issued, expressed as a rate per 1,000 residents. This includes permits for new construction of residences, including mobile homes.	Number of residential building permits issued; population	Local governments; census	County data are from the Genesee/Finger Lakes Regional Planning Council, based on their annual survey of municipalities. State data are from the U.S. Department of Housing and Urban Development, and national data are from the U.S. Census Bureau.
Average wages in region over time by county	Includes working with existing and emerging industries, entrepreneurs and educators to accelerate business growth and employment across key sectors that support regional sustainability goals. It supports growth of both urban industry and rural businesses.				
Successful commercialization of technologies and associated jobs		Measure of the number of new technologies that reach commercialization and number of new jobs associated with it.			
Trained workforce available for diverse employment opportunties					
New mechanisms for training in education					
Internal guidelines, certifications and aspirations meets or exceeds 3rd party standards and intentions					
Supply chain leads in sustainability and ties into education system which meets or exceeds 3rd party standards and intentions					

ECONOMIC DEVELOPMENT

NYSERDA Indicator Evaluation

	Evaluation Criteria (Weight)					
Indicator	**Consistent with NYSERDA Guidance (3)**	**Consistent with Regional Performance Measure (1)**	**Favored by Stakeholder Group (2)**	**Data Availability (2)**	**Summary Score**	**General Notes**
Housing + Transportation Index : Transportation/Housing affordability	8	3	5	3	43	
Jobs created by sector	6	3	5	3	37	
Average weekly wages by county	6	2	5	3	36	
Production of farms	6	2	5	3	36	
Unemployment rate	6	3	5	2	35	
Acreage of farms	6	2	5	1	32	
Economic Activity: Gross Regional Product	5	2	4	3	31	
Investment in infrastructure (transportation, drinking water and wastewater facilities, stormwater, and energy)	5	1	5	1	28	
Total number of visitors and regional tourism dollars spent	5	2	2	3	27	
Jobs and housing balance	5	2	2	3	27	
Relationship of wages to changes in employment	5	1	2	3	26	
Number of farmers markets	5	1	4	1	26	
GINI Index	5	1	2	3	26	
Tax Policy and Incentives – Percent of municipalities with tax policies and incentives to encourage development in municipal centers	6	1	2	1	25	
Measure disposable income	4	2	4	1	24	
Annual growth in total employment	2	3	5	1	21	
Earnings per job	2	3	5	1	21	
Average salary by sector	2	3	5	1	21	
Change in Average Salary since 2000	2	3	5	1	21	
Annual Revenue from local businesses	5	1	2	0	20	
Average wages in region over time by county	2	2	5	1	20	
Funding opportunities	2	1	5	1	19	
Number of people receiving social services	2	2	3	1	16	
Net advocate score	0	3	5	1	15	
Where visitors are coming from	2	1	4	0	15	
Employment-to-Population Ratio	2	3	2	1	15	
Investment in research	0	1	5	1	13	
Venture capital investment	0	1	5	1	13	
Science and Engineering Research	0	3	4	1	13	
Maintaining our Main Streets	1	1	4	0	12	
Infrastructure development vs. re-development funding – land use, planning, ROI	1	1	4	0	12	
Age distribution of workers	0	1	4	1	11	
Job training programs	0	1	4	1	11	
STEM programs – partnership with industries	0	1	4	1	11	
Successful commercialization of technologies and associated jobs	0	1	4	1	11	
Trained workforce available for diverse employment opportunties	0	1	4	1	11	
New mechanisms for training in education	0	1	4	1	11	
Supply chain leads in sustainability and ties into education system which meets or exceeds 3rd party standards and intentions	0	1	4	1	11	
Trained workforce available for diverse employment opportunties	0	1	4	1	11	
New mechanisms for training in education	0	1	4	1	11	
New business establishments as a share of established firms	0	3	2	1	9	
Formation and expansion of minority- and women-owned business establishments (W/MBE)	0	3	2	1	9	
Share lacking health insurance coverage	0	3	2	1	9	
Participation in culture/recreation	0	3	2	1	9	

Indicator	Consistent with NYSERDA Guidance (3)	Consistent with Regional Performance Measure (1)	Favored by Stakeholder Group (2)	Data Availability (2)	Summary Score	General Notes
Age-Sex-Race Adjusted Medicare Spending Per Beneficiary	0	3	2	1	9	
Commercial Insurance: Per member per month outpatient cost	0	3	2	1	9	
Number of firms and employees (types of businesses) – 10+ employees – impact on region based on employment (net formation and survival)	0	1	3	1	9	
Business locations where infrastructure already exists	0	1	3	1	9	
Number of vocational graduates	0	1	3	1	9	
Track number of flood events – loss of property value	0	1	3	1	9	
Change in Number of Business Establishments by sector	0	3	2	1	9	
Spending for County Government	0	3	2	1	9	
Spending for Local Government	0	3	2	1	9	
Spending for School Districts	0	3	2	1	9	
Residential Building Permits	0	3	2	1	9	
Internal guidelines, certifications and aspirations meets or exceeds 3rd party standards and intentions	0	1	3	1	9	
Internal guidelines, certifications and aspirations meets or exceeds 3rd party standards and intentions	0	1	4	0	9	
Supply chain leads in sustainability and ties into education system which meets or exceeds 3rd party standards and intentions	0	1	4	0	9	
Measure of diversity	0	1	3	0	7	

ECONOMIC DEVELOPMENT

Place-Sourced Indicator Evaluation

	Evaluation Criteria											
	Enrichment of 5 Capitals:											
Indicator	**Natural**	**Built / Manufactured**	**Social**	**Human**	**Financial**	**Diversity**	**Resiliency**	**Life cycle cost and benefit**	**Ability to leverage Story of Place - Innovation "Accelerator"**	**Favored by Stakeholder Group**	**Summary Score**	**General Notes**
Successful commercialization of technologies and associated jobs		1	1	1	1	1			2	4	11	
Venture capital investment		1	1	1	1				2	5	11	
Supply chain leads in sustainability and ties into education system which meets or exceeds 3rd party standards and intentions	1		1	1		0	0	1	2	4	10	
Economic Activity: Gross Regional Product	0	1		1	1		1		2	4	10	
Housing + Transportation Index : Transportation/Housing affordability		1	1		1	1	1			5	10	
Infrastructure development vs. re-development funding – land use, planning, ROI	1	1	1		1		1	1		4	10	
Investment in research			1	1	1				2	5	10	
Spending for School Districts		1	1	1	1		1	1	2	2	10	
Science and Engineering Research		1	1	1	1				2	4	10	
Jobs created by sector				1	1	1	1		2	3	9	
Annual Revenue from local businesses			1	1	1	1	1		2	2	9	
Number of farmers markets	1	1	1	1			1			4	9	
Net advocate score			1	1					2	5	9	
Age distribution of workers				1		1	1		2	4	9	
STEM programs – partnership with industries			1	1		1			2	4	9	
Change in Average Salary since 2000				1	1				2	5	9	
Spending for County Government		1	1		1		1	1	2	2	9	
Spending for Local Government		1	1		1		1	1	2	2	9	
Trained workforce available for diverse employment opportunties			1	1		1			2	4	9	
New mechanisms for training in education			1	1		1			2	4	9	
Internal guidelines, certifications and aspirations meets or exceeds 3rd party standards and intentions	1		1	1					2	4	9	
Investment in infrastructure (transportation, drinking water and wastewater facilities, stormwater, and energy)	1	1	1	0	1		0	1		3	8	
Funding opportunities				1	1		1		0	5	8	
Production of farms	1	1			1					5	8	
Total number of visitors and regional tourism dollars spent	1		1	1	1				2	2	8	
New business establishments as a share of established firms		1		1	1	1			2	2	8	
Participation in culture/recreation	1		1	1		1			2	2	8	
Number of firms and employees (types of businesses) – 10+ employees – impact on region based on employment (net formation and survival)				1	1	1			2	3	8	
Change in Number of Business Establishments by sector				1	1	1	1		2	2	8	
Average salary by sector				1	1	1				5	8	
Unemployment rate				1	1					5	7	
Acreage of farms	1	1								5	7	
Annual growth in total employment				1	1					5	7	
Formation and expansion of minority- and women-owned business establishments (W/MBE)				1	1	1			2	2	7	
Earnings per job				1	1					5	7	
Maintaining our Main Streets		1	1					1		4	7	
Job training programs				1	1	1				4	7	
Measure of diversity						1	1		2	3	7	
Track number of flood events – loss of property value	1	1					1	1		3	7	
Average wages in region over time by county				1	1					5	7	
Average weekly wages by county					1					5	6	
Relationship of wages to changes in employment				1	1				2	2	6	
Tax Policy and Incentives – Percent of municipalities with tax policies and incentives to encourage development in municipal centers		1	1	1	1					2	6	
Number of people receiving social services				1	1					4	6	
Business locations where infrastructure already exists		1					1	1		3	6	
Where visitors are coming from			1			1				4	6	
Residential Building Permits		1	1		1			1		2	6	
Measure disposable income				1	1					3	5	
Number of vocational graduates				1		1				3	5	

Indicator	Enrichment of 5 Capitals: Natural	Built / Manufactured	Social	Human	Financial	Diversity	Resiliency	Life cycle cost and benefit	Ability to leverage Story of Place - Innovation "Accelerator"	Favored by Stakeholder Group	Summary Score	General Notes
Jobs and housing balance		1			1					2	4	
GINI Index					1	1				2	4	
Age-Sex-Race Adjusted Medicare Spending Per Beneficiary				1	1					2	4	
Commercial Insurance: Per member per month outpatient cost				1	1					2	4	
Employment-to-Population Ratio				1	1					2	4	
Share lacking health insurance coverage				1						2	3	

ECONOMIC DEVELOPMENT
Recommended INDICATORS

NYSERDA Indicators	Description	Calculation	Data Required/Source	Baseline Value (2010)	General Notes
Housing + Transportation Index : Transportation/Housing affordability	NYSERDA required indicator 6A: Percentage of household income spent on housing and transportation	Weighted Average of H+T Index (from Center for Neighborhood Technology), by County	H+T Affordability Index/Center for Neighborhood Technology (http://htaindex.cnt.org/)	52.07%	No data available for Wyoming or Yates County
Jobs created by sector	NYSERDA common indicator 6B: Increase or decrease in by sector over a one year period	Jobs Created = Σ Jobs created by county = Change in total private sector jobs + Change in total government sector jobs + Change in farm jobs+ Unclassified	Change in total jobs/Bureau of Labor Statistics and NYS Labor Department (updated quarterly)	Government: 90,180	Includes Federal, State, and Local jobs - Baseline Data is 2010 total jobs by sector
				Private: 436,199	Includes all private sector jobs except Agriculture and Unclassified
				Agriculture: 6,122	Includes Forestry
				Unclassified: 496	
Place-Sourced Indicators	**Description**	**Calculation**	**Data Required/Source**	**Baseline Value (2010)**	**General Notes**
Successful commercialization of technologies and associated jobs	Measure of the number of new technologies that reach commercialization and number of new jobs associated with it.	Sum of new technologies that reach commercialization and jobs associated	Technologies reaching commercialization, jobs associated/source unknown at this time	Currently Unavailable	This does not appear to be something currently tracked and would likely involve primary data collection and setting up mechanisms to track this in the future. This is considered a valuable indicator and it is recommended that it be collected in the future.
Venture capital investment	Measure of new venture capital in the Region	Sum of VC investments by county per year	Venture Capital Investment by county across the region, rolled up to one annual number for the region./PriceWaterhouse Coopers Money Tree https://www.pwcmoneytree.com/MTPublic/ns/nav.jsp?page=region&region=1201	Currently unavailable at the county or regional level.	Data does not appear to be available on a county by county basis or for our defined region. The smallest scale tracked and reported is for Upstate NY region which is everything in NYS excluding NYC. This is considered a valuable indicator and it is recommended that it be collected in the future.
Jobs created in the following sectors: Food Manufacturing/Alternative Energy/Materials Science	Variant of NYSERDA common indicator 6B: Increase or decrease in jobs by select sectors over a one year period: Food Manufacturing Alternative Energy Related Industry Materials Science	Sum of jobs created in Food Manufacturing Sum of jobs created in Alternative Energy Sum of jobs created in Materials Science all compared to previous period	Number of jobs in each of three segments: Food Manufacturing/Alternative Energy/Materials Science/subset of data currently tracked and reported by Labor Department	6,972	Food Manufacturing includes Dept. of Labor categories "Food Manufacturing" and "Beverage Tobacco Product Manufacturing". Alternative enery and materials science data is not currently tracked and reported in this manner. May need to drill-down into existing data sources to see if we may be able to capture this and/or institute mechanisms to track this in the future. This is considered a valuable indicator and it is recommended that it be collected in the future.

Agriculture & Forestry Indicators

AGRICULTURE
POTENTIAL INDICATORS

Indicator	Description	Calculation	Data Required	Data Availability	General Notes
1. Direct farm sales per capita	Reflects the market for direct farm sales within each county. Direct farm sales are generally more profitable for the producer, can greatly reduce transportation-borne emissions related to food consumption, and improve residents' access to fresh food.	Total value of farm sales direct to consumers (including sales from roadside stands, farmers markets, pick-your-own, door-to-door, etc., but not sales of craft items or processed products, such as jellies, sausages, and hams) divided by the number of residents of the county.	USDA Food Atlas' Local Foods data	http://www.ers.usda.gov/data-products/food-environment-atlas.aspx	This indicator combines the purpose/intent of several NYSERDA and Place-Sourced indicators related to farmers' markets, CSAs, etc.
2. Number of community food-producing gardens in municipal centers	This indicator tracks the capacity and infrastructure of municipal/urban centers in the Region to produce food. Suburban and rural areas where the need for community gardens is significantly less due to larger parcel sizes are excluded.	Total count of community food-producing gardens in municipal centers.	Community food-producing gardens		See Indicator #1- it is anticipated that these venues would be counted via direct sales per capita.
3. Acres of agricultural land in non-agricultural use	Agricultural lands zoned for other use (see General Notes- measured differently, this indicator also describes economic accessibility of quality farmland)	Geospatial overlay of soil capability classes vs. developed areas (per NASS CropScape data); sum of high-value ag land within X-mile buffer of low-intensity developed areas	NASS CropScape Cropland Data Layer; NRCS Soil Survey	http://nassgeodata.gmu.edu/CropScape/; http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm	Zoning districts are not a good measure for agricultural use- data is incomplete and not suited for land use classification. Calculation proposed here is a more accurate measure, will allow for greater number of measurements through time, and will better support discussions of economic accessibility of quality farmland and vulnerability of conversion.
4. Acreage of preserved farmland, farmland with permanent USDA easement and Purchased Development Rights (PDR) for priority properties in the Region.	This is a measure of the region's capacity to provide secure food production. It includes farmland that is formally protected/preserved in perpetuity using fee-simple acquisition, conservation easements transfer of development rights programs, or other similar initiatives.	Total acreage of PDRs and farmland preserved in perpetuity.	Acres of farmland preserved; PDR acres; USDA permanent easements	County assessor parcel data, aggregated for the region; American Farmland Trust; WNY Land Conservancy; Finger Lakes Land Trust; counties with PDR programs; NRCS	Program enrollment may be an appropriate strategy to achieve goals, but it is not a direct measure of sustainable practices.
5. Acres of agricultural land enrolled in NYS Soil & Water Conservation Committee's Agricultural Environmental Management Program (AEM) and Acres of Certified, Managed Forestland	With the assistance of AEM Certified planners, these farms have developed science-based Comprehensive Nutrient Management Plans to control runoff, conserve soil and recycle nutrients.	Sum of acres enrolled in programs	Soil & Water Conservation Districts, FSC	http://www.fsc.org/certification.4.htm each county SWCD	Program enrollment may be an appropriate strategy to achieve goals, but it is not a direct measure of sustainable practices.
6. Agricultural crop damage from flooding	This indicator tracks the impacts of climate change on the agricultural sector of the Region	Sum of damaged crop volumes	National Weather Service	http://www.nws.noaa.gov/om/hazstats/state11.pdf	Similar to indicator 7 (below), county-level data availability unknown. This data point is not tracked by NASS or ERS, but may be available through crop insurance payouts regulated by NYS Ag & Markets.
7. Agricultural economic loss attributable to temperature and drought stress, and flooding	This indicator tracks the impacts of climate change on the agricultural sector of the Region	Sum of economic losses ($)	Agricultural economic loss	www.agriculture.ny.gov [?]	Similar to indicator 6 (above), county-level data availability unknown. This data point is not tracked by NASS or ERS, but may be available through crop insurance payouts regulated by NYS Ag & Markets.
8. Number of farmers markets	This provides insight into market access for local food products.	Sum of farmers markets	USDA Food Atlas' Local Foods data	http://www.ers.usda.gov/data-products/food-environment-atlas.aspx	This indicator is a subset of indicator #1 which focuses on regional use and consumption of FL produced products.
9. Acres of cropland using soil conserving and organic matter building practices such as crop rotations, cover crops, residue management.	This indicator looks at opportunities to increase land productivity including protection from degradation. Carbon sequestration may be increased through increased use of crop rotations, cover crops, residue management, improved management of manures and other organic materials. This will result in soil conservation benefits as well.	Sum of acres under cultivation using soil conserving and organic matter building practices.	NRCS	NRCS program enrollment [?]	County-level data availability unknown. May be tracked by NYS office of NRCS. Program enrollment may not be a good measurement, however.
10. Net increase in highly erodible cropland planted to perennial vegetation.	This indicator looks at opportunities to increase land productivity including protection from degradation.	Net increase in sum of "helclass" vs. perennial plantings (per NASS CropScape data) via geospatial overlay	Highly erodible cropland ("helclass"); NASS CropScape Data Layer	STATSGO/SSURGO databases; http://nassgeodata.gmu.edu/CropScape/	
11. Number of CSAs within the region	This indicator looks at opportunities to generate profitable (i.e. sustainable) economic activity at the regional level.	Sum of CSAs	USDA Food Atlas' Local Foods data	http://www.ers.usda.gov/data-products/food-environment-atlas.aspx	This indicator is a subset of indicator #1 which focuses on regional use and consumption of FL produced products.
12. Number of urban farms and value of products	This indicator looks at opportunities to generate profitable (i.e. sustainable) economic activity at the regional level.	Sum of urban farms	NASS, NYS Ag & Mkts	[?]	This indicator is a subset of indicator #1 which focuses on regional use and consumption of FL produced products.
13. Methane generation and combustion	This indicator looks at economic opportunities to generate methane from manure, food waste, and woody biomass.	Methane generation and combustion	NYSERDA, EIA	[?]	Assumed to be covered in Tier I/II GHG inventories
14. Use of external inputs	Describes the use of chemical fertilizer and manure purchased for agricultural operations.	% of total operational expenses dedicated to chemical and fertilizer purchases; country-level estimates of N,P,K applied per year (1987-2002)	USDA Ag Census, 1997-2007; Ruddy (2006) study	http://quickstats.nass.usda.gov/; http://pubs.usgs.gov/sir/2006/5012/	The link between N,P,K applications and water quality is very strong. Due to the abundance and quality of water resources in the Finger Lakes region, this measure may be of greater importance than the score suggests.

Indicator	Description	Calculation	Data Required	Data Availability	General Notes
15. Number of farms, acres, parcels within agricultural districts.	This indicator offers information regarding areas protected from development.	Sum of farms, acres, and parcels in agricultural districts	County assessors' rolls	County assessor parcel data	
16. Acreage of farms	Area of land used for growing crops, rearing animals	Sum of NASS CropScape crop areas	NASS CropScape Cropland Data Layer	http://nassgeodata.gmu.edu/CropScape/	On its own, this indicator doesn't measure the sustainability of individual operations or the agricultural sector in aggregate. However, it is valuable to include this data in other indicators (e.g. acres of ag land in non-ag use, diversity of production).
17. Production ($) of farms	Cash receipts by county	Crop totals- sales ($) per county	USDA Ag Census, 1997-2007	http://quickstats.nass.usda.gov/	Production value does not measure sustainability (e.g. recent dramatic rise in corn prices does not indicate whether corn farming is more or less economically, environmentally, or socially sustainable, and has opposite impacts on producers vs. consumers). The diversity indicator (below) would still incorporate a measure of production, and would do so in a manner more consistent with the FLSP definition of sustainability.
18. Acreage of high-value ag land	High-value farmland as defined by NRCS	Sum of acreage of higher-value mineral soil groups?	NRCS Soil Survey	http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm	In and of itself, this indicator will not change much over time (mineral soil types do not fluctuate). However, the process of locating high-value ag land is incorporated into the indicator of acres of ag land in non-ag use (above).
19. Diversity of production	Reflects the productivity and resiliency of agricultural sector	Shannon's diversity index = -∑Pi*LN(Pi). This index is the sum of the products of relative proportion of each crop harvested within the county times the natural log of each proportion. May be normalized or indexed to 1.	USDA Ag Census, 1997-2007	http://quickstats.nass.usda.gov/	This indicator reflects both economic and environmental sustainability issues, and incorporates a measure of best management practices within the agricultural sector. Rotations and cover crops are accommodated in this indicator- cover crops such as winter wheat, rye, etc. are counted in the crop harvest data.
20. Change in agricultural sector jobs	This indicator provides a macro level view to economic development and represents economic growth.	Sum of agricultural employment per year	NYS Bureau of Labor Statistics	http://www.labor.ny.gov/stats/fin/default.asp	Regional-level data readily available through BLS. County-level data availability unknown. This indicator does not measure the sustainability of the agricultural sector.
21. No net loss of agricultural land (net gain?)	Describes the conversion of agricultural land for other purposes	Sum of acres dedicated to agricultural production	NASS CropScape Cropland Data Layer	http://nassgeodata.gmu.edu/CropScape/	See indicator #3- provides a clearer measure of land conversion.
22. Inputs go down while soil health goes up	Reflects the general aim of decreasing potential nonpoint source pollutants while increasing the quality of the soil resource	[?]		unavailable	Data is not available to measure this indicator as it is presented here; can be adjusted to reflect the use of inputs, but soil health is not measured on a regional basis
23. Increased number of food crops and farmers markets	Measures the diversity of regional production, potential for direct sales, and regional residents' access to fresh food	Sum of food crops; sum of farmers markets	USDA Ag Census, 1997-2007; USDA Food Atlas' Local Foods data	http://quickstats.nass.usda.gov/; http://www.ers.usda.gov/data-products/food-environment-atlas.aspx	As presented, units of analysis are too dissimilar- should be separated into two indicators. See indicator #19 regarding diversity of production. Several indicators can be combined re: farmers' markets and other direct-marketing opportunities for regional producers.
24. Increase in viability of farms	Measures the potential for new farmers to enter the marketplace, and for existing farmers to remain in the marketplace	[?]	Operation-level data	not available	Viability measurement requires operation-scale data to be collected and aggregated; unsure whether or not regional data would provide a reliable and meaningful measurement of actual operational viability
25. Increase in urban farms and gardens	Describes potential food access for traditionally vulnerable populations	Sum of urban farms; sum of urban gardens	USDA Ag Census, 1997-2007; USDA Food Atlas' Local Foods data	http://quickstats.nass.usda.gov/; http://www.ers.usda.gov/data-products/food-environment-atlas.aspx	See indicator #1.

AGRICULTURE

NYSERDA Indicator Evaluation

	Evaluation Criteria (Weight)					
Indicator	**Consistent with NYSERDA Guidance (3)**	**Consistent with Regional Performance Measure (1)**	**Favored by Stakeholder Group (2)**	**Data Availability (2)**	**Summary Score**	**General Notes**
20. Change in agricultural sector jobs	6	2	5	3	36	Not a reliable measure of sustainability per se
16. Acreage of farms	6	1	5	3	35	Will be discussed in narrative form in the introductory narrative
17. Production ($) of farms	6	1	5	3	35	Partially counted in "direct farm sales" indicator; otherwise, not a reliable measure of sustainability per se
1. Direct farm sales per capita	5	1	5	3	32	Combines the purpose of several place-sourced indicators
3. Acres of agricultural land in non-agricultural use	5	1	5	3	32	This NYSERDA indicator also addresses concerns raised by stakeholders
8. Number of farmers markets	5	1	5	3	32	Counted indirectly in "direct farm sales" indicator
18. Acreage of high-value ag land	5	1	5	3	32	Counted directly in "acres of ag land in non-ag use" indicator
10. Net increase in highly erodible cropland planted to perennial vegetation.	5	1	4	3	30	Perennial vegetation will be directly counted in "diversity of production" indicator, and its importance can be discussed specifically in narrative
11. Number of CSAs within the region	5	1	4	3	30	Counted indirectly in "direct farm sales" indicator
4. Acreage of preserved farmland, farmland with permanent USDA easement and Purchased Development Rights (PDR) for priority properties in the Region.	5	1	4	1	26	The underlying issue is accommodated in "acres of ag land in non-ag use" indicator
9. Acres of cropland using soil conserving and organic matter building practices such as crop rotations, cover crops, residue management.	5	1	4	1	26	Cover crops and rotations will be discussed in "diversity of production" indicator
12. Number of urban farms and value of products	5	1	4	1	26	Counted indirectly in "direct farm sales" indicator
13. Methane generation and combustion	5	1	4	1	26	Assumed to be covered elsewhere in report
15. Number of farms, acres, parcels within agricultural districts.	5	1	4	1	26	Number of farms counted directly in "diversity of production" indicator
14. Use of external inputs	2	2	5	3	24	Specifically addresses water quality, a key Story of Place component
5. Acres of agricultural land enrolled in NYS Soil & Water Conservation Committee's Agricultural Environmental Management Program (AEM) and Acres of Certified, Managed Forestland	5	1	2	1	22	Not a reliable measure of sustainability per se
2. Number of community food-producing gardens in municipal centers	5	1	2	0	20	Likely to be counted indirectly by "direct farm sales" indicator; otherwise, neglects too many areas outside of urban centers
6. Agricultural crop damage from flooding	5	1	2	0	20	Assumed to be referenced in Climate Change Adaptation section of report
7. Agricultural economic loss attributable to temperature and drought stress, and flooding	5	1	2	0	20	Assumed to be referenced in Climate Change Adaptation section of report
21. No net loss of agricultural land (net gain?)	1	1	5	3	20	Counted directly in "acres of ag land in non-ag use" indicator
23. Increased number of food crops and farmers markets	1	1	5	3	20	Counted directly in "diversity of production" indicator
25. Increase in urban farms and gardens	1	1	5	3	20	Likely to be counted indirectly by "direct farm sales" indicator
19. Diversity of production	0	2	5	3	18	Agricultural diversity is another element of the Story of Place- we expect to find a higher degree of diversity here than elsewhere
22. Inputs go down while soil health goes up	2	1	5	0	17	Counted indirectly in "use of external inputs" indicator; can't describe soil health on a regional basis very efficiently
24. Increase in viability of farms	0	1	5	1	13	Difficulty operationalizing viability per se on a regional, sector-wide basis; resiliency (a component of viability) can be described through other indicators

AGRICULTURE

Place-Sourced Indicator Evaluation

	Evaluation Criteria											
	Enrichment of 5 Capitals:											
Indicator	**Natural**	**Built / Manufactured**	**Social**	**Human**	**Financial**	**Diversity**	**Resiliency**	**Life cycle cost and benefit**	**Ability to leverage Story of Place - Innovation "Accelerator"**	**Favored by Stakeholder Group**	**Summary Score**	**General Notes**
1. Direct farm sales per capita	1		1	1	1	1	1			5	11	Combines the purpose of several place-sourced indicators
2. Number of community food-producing gardens in municipal centers	1		1		1	1	1			5	10	Likely to be counted indirectly by "direct farm sales" indicator; otherwise, neglects too many areas outside of urban centers
3. Acres of agricultural land in non-agricultural use	1		1		1		1	1	1	5	11	This NYSERDA indicator also addresses concerns raised by stakeholders
14. Use of external inputs	1				1		1	1	1	5	10	Specifically addresses water quality, a key Story of Place component
19. Diversity of production	1				1	1	1		1	5	10	Agricultural diversity is another element of the Story of Place- we expect to find a higher degree of diversity here than elsewhere
25. Increase in urban farms and gardens	1		1		1	1	1			5	10	Likely to be counted indirectly by "direct farm sales" indicator
8. Number of farmers markets			1		1	1	1			5	9	Counted indirectly in "direct farm sales" indicator
4. Acreage of preserved farmland, farmland with permanent USDA easement and Purchased Development Rights (PDR) for priority properties in the Region.	1				1		1	1		4	8	The underlying issue is accommodated in "acres of ag land in non-ag use" indicator
11. Number of CSAs within the region			1		1	1	1			4	8	Counted indirectly in "direct farm sales" indicator
22. Inputs go down while soil health goes up	1						1	1		5	8	Counted indirectly in "use of external inputs" indicator; can't describe soil health on a regional basis very efficiently
23. Increased number of food crops and farmers markets					1	1	1			5	8	Counted directly in "diversity of production" indicator
24. Increase in viability of farms					1		1	1		5	8	Difficulty operationalizing viability per se on a regional, sector-wide basis; resiliency (a component of viability) can be described through other indicators
9. Acres of cropland using soil conserving and organic matter building practices such as crop rotations, cover crops, residue management.	1					1	1			4	7	Cover crops and rotations will be discussed in "diversity of production" indicator
12. Number of urban farms and value of products					1	1	1			4	7	Counted indirectly in "direct farm sales" indicator
15. Number of farms, acres, parcels within agricultural districts.	1				1		1			4	7	Number of farms counted directly in "diversity of production" indicator
16. Acreage of farms	1						1			5	7	Will be discussed in narrative form in the introductory narrative
20. Change in agricultural sector jobs				1	1					5	7	Not a reliable measure of sustainability per se
21. No net loss of agricultural land (net gain?)	1						1			5	7	Counted directly in "acres of ag land in non-ag use" indicator
10. Net increase in highly erodible cropland planted to perennial vegetation.	1						1			4	6	Perennial vegetation will be directly counted in "diversity of production" indicator, and its importance can be discussed specifically in narrative
13. Methane generation and combustion	1							1		4	6	Assumed to be covered elsewhere in report
17. Production ($) of farms					1					5	6	Partially counted in "direct farm sales" indicator; otherwise, not a reliable measure of sustainability per se
18. Acreage of high-value ag land	1									5	6	Counted directly in "acres of ag land in non-ag use" indicator
6. Agricultural crop damage from flooding	1				1		1			2	5	Assumed to be referenced elsewhere in report
7. Agricultural economic loss attributable to	1				1		1			2	5	Assumed to be referenced elsewhere in report
5. Acres of agricultural land enrolled in NYS Soil & Water Conservation Committee's Agricultural Environmental Management Program (AEM) and Acres of Certified, Managed Forestland	1						1			2	4	Not a reliable measure of sustainability per se

AGRICULTURE
Recommended INDICATORS

NYSERDA Indicators	Description	Calculation	Data Required/Source	Baseline Value (2010)	General Notes
Acres of agricultural land in non-agricultural use	Identifies the acreage of high-quality agricultural soils used for non-agricultural purposes.	Sum of acreage in NRCS Soil Capability Classes I and II that overlap acreage of areas classified as "developed" by the USDA	NASS CropScape Cropland Data Layer; NRCS Soil Survey	155,968	Scores well by both NYSERDA and Place-Sourced criteria. Accommodates much of the stakeholder commentary regarding both loss (or potential gain) of ag land and the quality/suitability of land for agriculture. Identifies the consumption of quality farmland, and can also identify the farmland that is at risk in the future. Longitudinal data is currently available, and is expected to be available in the long term.
Place-Sourced Indicators	**Description**	**Calculation**	**Data Required/Source**	**Baseline Value (2010)**	**General Notes**
Direct farm sales per capita	Reflects the market for direct farm sales within each county. Direct farm sales are generally more profitable for the producer, can greatly reduce transportation-borne emissions related to food consumption, and improve residents' access to fresh food.	Total value of farm sales direct to consumers (including sales from roadside stands, farmers markets, pick-your-own, door-to-door, etc., but not sales of craft items or processed products, such as jellies, sausages, and hams) divided by the number of residents of the county.	USDA Food Atlas' Local Foods data: http://www.ers.usda.gov/data-products/food-environment-atlas.aspx	$9.52	This measure leverages several Place-Sourced indicators, as well as at least one NYSERDA Secondary Indicator.
Use of external inputs	Describes the use of chemical fertilizer and manure purchased for agricultural operations.	% of total operational expenses dedicated to chemical and fertilizer purchases; country-level estimates of N,P,K applied per year (1987-2002)	USDA Ag Census, 1997-2007; Ruddy (2006) study: http://quickstats.nass.usda.gov/; http://pubs.usgs.gov/sir/2006/5012/	10.7%	The use of external inputs bears directly on the quality of the region's surface waters, which is one of the principal issues arising from the Story of Place initiative. The cost of external inputs is the closest recent measure available to describe existing conditions on a regional level; the values published in Ruddy (2006) are more direct but not as recent, so they will be referenced in the back-up material. Acreage receiving fertilizer or manure may be available through USDA/NASS Special Tabulation, and we are inquiring with the USDA regarding that data.
Diversity of production	Reflects the productivity and resiliency of agricultural sector	Shannon's diversity index = -∑Pi*LN(Pi). This index is the sum of the products of relative proportion of each agricultural commodity within the region times the natural log of each proportion.	USDA Ag Census, 1997-2007	6.97	Shannon's index is commonly used to describe ecological diversity, and has been cited in the literature of agricultural economics as a reliable measure of agricultural diversity as well. Because of the various ways agricultural production is measured (e.g. acres of cropland, head of cattle, etc.), this index may be adapted to describe the diversity of producers (i.e. farm operators) as opposed to production (i.e. crops).

FORESTRY
POTENTIAL INDICATORS

Indicator	Description	Calculation	Data Required	Data Availability	General Notes
1. Ratio of percent of forest by tree diameter class (small, medium, large)	Reflects the growth stages of forests in region, which contribute to different types of habitat	Area and percentage of forests in region, by county, in each age size class as a ratio of total forest area expressed as a ratio % large : %medium : %small	Forest Area by size-class: USFS FIA Standard Report number 2.4	http://apps.fs.fed.us/fido/	This indicator measures the proportion of forest habitat types at differing growth stages. Forest areas at different diameter-classes provide differing habitat quality in terms of supporting increased biodiversity. US Forest Service Forest Inventory and Analysis (FIA) estimates of forest size class proportions are the best available data source to infer the proportions of forest land growth stages that is readily available and collected regularly. Working alongside the bird species diversity indicator, this measure helps to quantify forest habitat quality and diversity, as a component of environmental sustainability.

2. Acres protected through NYSDEC and other public, non-profit and private protected lands.	Acreage of land that is owned by agencies or permanently protected under conservation easements by NYS agencies or other other organizations/institutions.	Acreage protected annually through local, regional not-for-profits (such as Finger Lankes Land Trust) or state-owned forested lands & conservation easements, state parks, conservation easements and other public, non-profit, and private protected lands.	Forested land purchased or protected by NYSDEC or OPHRP; forested land protected under conservation easemetn or owned by FLLT; forested land owned or protected by NYC DEP; farmland protected by PDR.	http://gis.ny.gov/index.cfm;
				http://gis.ny.gov/gisdata/inventories/member.cfm?organizationID=529;
				http://gis.ny.gov/gisdata/inventories/member.cfm?organizationID=588;
				www.fllt.org;
				tspies@dep.nyc.gov;
				http://www.agriculture.ny.gov/AP/agservices/agriculturaldistricts.html;
				http://cugir.mannlib.cornell.edu/index.jsp
					This indicator would inform the potential increase in level of protected forested land but will not be informative regarding the quality of forestlands in the Finger Lakes region.

3. Invasive Species Index	Reflects the level of risk to forest resources of potential damage from disease, pests, or other invasive species	Sum of index values for each species in region Index Value for a species = 1 + .5 x (the number of counties where it is is present in the region, other than the first county) Example: Species A is present in 4 counties Species A index value = 1 + (.5x3) = 2.5	New York Invasive Species Clearinghouse (NYIS)	http://www.nyis.info/index.php	This indicator reflects sustainability of forest resources by quantifying biological threats to the ecosystem. The observation data is updated regularly, and since it is an area of great concern (with large risks like the Emerald Ash Borer), it can be expected to be a strong and reliable data source. The index was created to allow for one number to represent both the presence of a species within the region, and how widespread it is.
4. Amount of biomass in live trees	Measures the amount of carbon stored in the forested areas of the region Goal: Increase biomass amount	tons of biomass in live trees on forestland	USFS FIA Standard Reports numbers 10.1	http://apps.fs.fed.us/fido/	This indicator quantifies the greenhouse gas capturing potential of the region's forest resources. Some methods for estimating the total carbon contained in forests. However, the literature states that, at this time, it is a very new science and the estimates are often contradictory and are, thus, deemed unreliable. As an approximation of carbon storage amounts, live tree biomass is used as the more biomass contained in the regions forests will mean that more carbon is stored since carbon is a large component of that biomass by weight.
5. Number of bird species	Reflects the extent of forested habitats	Number of survey blocks where four high-quality forest habitat indicator species were observed during the most recent NYS Breeding Bird Atlas Survey period (2000-2005) as reported in the NYNHP Nature Explorer database	New York State Breeding Bird Atlas 2000-2005	http://www.dec.ny.gov/animals/7312.html http://www.dec.ny.gov/natureexplorer/app/location/county	This indicator reflects environmental sustainability issues, as it is an index for how diverse and healthy the ecosysems which serve as bird habitat are. It is not tracked yearly, however the third study is planned to be undertaken in the next decade, which will allow for comparison.
6. Wildfire Occurences	Measures the level of fire threat to regional forests	Number of wildfire occurences in Region in past 5 years	Wildfire Occurrence Data	Available from DEC Division of Lands and Forests	We may be able to get this data, and may not. If it is available, the indicator could be used as a measure of abiotic threat to forest resources.

FORESTRY

NYSERDA Indicator Evaluation

	Evaluation Criteria (Weight)					
Indicator	**Consistent with NYSERDA Guidance (3)**	**Consistent with Regional Performance Measure (1)**	**Favored by Stakeholder Group (2)**	**Data Availability (2)**	**Summary Score**	**General Notes**
2. Acres protected through NYSDEC and other public, non-profit and private protected lands.	5	1	2	1	22	Not a preferred indicator because data that is available is unreliable/incomplete. Does not measure the quality of forest resources
1. Ratio of percent of forest by tree diameter class (small, medium, large)	0	1	2	3	11	Contibutes to quantifying sustainability by measuring habitat diversity
3. Invasive Species Index	0	1	2	3	11	Contributes to quantifying sustainability by measuring biological threats to forest resources
4. Amount of biomass in live trees	0	1	2	3	11	Contributes to quantifying sustainability by indirectly measuring carbon sequestration of forest resources
5. Number of bird species	0	1	2	3	11	Contributes to quantifying sustainability by measuring biodiversity of forests
6. Wildfire Occurences	0	1	2	1	7	Contributes to quantifying sustainability by measuring a non-biological stress to forests. At this time we do not have the data, however it may be available. If we are able to obtain it, it will be a recommended indicator

FORESTRY

Place-Sourced Indicator Evaluation

	Evaluation Criteria											
Indicator	**Enrichment of 5 Capitals: Natural**	**Enrichment of 5 Capitals: Built /Manufactured**	**Enrichment of 5 Capitals: Social**	**Enrichment of 5 Capitals: Human**	**Enrichment of 5 Capitals: Financial**	**Diversity**	**Resiliency**	**Life cycle cost and benefit**	**Region's ability to leverage its unique Story of Place - Innovation "Accelerator"**	**Favored by Stakeholder Group**	**Summary Score**	**General Notes**
1. Ratio of percent of forest by tree diameter class (small, medium, large)	1		1			1	1				4	Contibutes to quantifying sustainability by measuring habitat diversity
2. Acres protected through NYSDEC and other public, non-profit and private protected lands.	1		1			1	1				4	Not a preferred indicator because data that is available is unreliable/incomplete. Does not measure the quality of forest resources
4. Amount of biomass in live trees	1		1			1	1				4	Contributes to quantifying sustainability by indirectly measuring carbon sequestration of forest resources
5. Number of bird species	1		1			1	1				4	Contributes to quantifying sustainability by measuring biodiversity of forests
3. Invasive Species Index	1		1				1				3	Contributes to quantifying sustainability by measuring measuring biological threats to forest resources
6. Wildfire Occurences	1		1				1				3	Contributes to quantifying sustainability by measuring a non-biological stress to forests. At this time we do not have the data, however it may be available. If we are able to obtain it, it will be a recommended indicator

FORESTRY
Recommended INDICATORS

NYSERDA Indicators	Description	Calculation	Data Required/Source	Baseline Value (2010)	General Notes
Place-Sourced Indicators	**Description**	**Calculation**	**Data Required/Source**	**Baseline Value (2010)**	**General Notes**
Ratio of percent of forests by tree size class (small, medium, large)	Reflects the growth stages of forests in region, which contribute to different types of habitat	Area and percentage of forests in region, by county, in each age size class as a ratio of total forest area expressed as a ratio % large : %medium : %small	Forest Area by size-class: USFS FIA Standard Report number 2.4	63% large; 21% medium; 16% small	This indicator measures the proportion of forest habitat types at differing growth stages. Forest areas at different diameter-classes provide differing habitat quality in terms of supporting increased biodiversity. US Forest Service Forest Inventory and Analysis (FIA) estimates of forest size class proportions are the best available data source to infer the proportions of forest land growth stages that is readily available and collected regularly. Working alongside the bird species diversity indicator, this measure helps to quantify forest habitat quality and diversity, as a component of environmental sustainability. Forestry Stakeholders were not present at Working Group Meeting #2, therefore the indicators were not discussed.
Amount of biomass in live trees	Measures the amount of carbon stored in the forested areas of the region	tons of biomass in live trees on forestland	USFS FIA Standard Report numbers 10.1 (biomass in live trees)	60,937,524 Short tons of biomass	This indicator quantifies the greenhouse gas capturing potential of the region's forest resources. Some methods for estimating the total carbon contained in forests. However, the literature states that, at this time, it is a very new science and the estimates are often contradictory and are, thus, deemed unreliable. As an approximation of carbon storage amounts, live-tree biomass is used as the more biomass contained in the regions forests will mean that more carbon is stored since carbon is a large component of that biomass by weight. Forestry Stakeholders were not present at Working Group Meeting #2, therefore the indicators were not discussed.
Number of bird species	Reflects the extent of forested habitats	Number of survey blocks where four high-quality forest habitat indicator species were observed during the most recent NYS Breeding Bird Atlas Survey period (2000-2005) as reported in the NYNHP Nature Explorer database	New York State Breeding Bird Atlas 2000-2005	54-289-428-358	This indicator reflects environmental sustainability issues, as it is an index for how diverse and healthy the ecosysems which serve as bird habitat are. The Breeding Bird Atlas is not tracked yearly, however the study is planned to be repeated in the next decade, which will allow for comparison. Forestry Stakeholders were not present at Working Group Meeting #2, therefore the indicators were not discussed.
Invasive Species Index	Reflects the level of risk to forest resources of potential damage from disease, pests, or other invasive species	Sum of index values for each species in region Index Value for a species = 1 + .5 x (the number of counties where it is is present in the region, other than the first county) Example: Species A is present in 4 counties Species A index value = 1 + (.5x3) = 2.5	New York Invasive Species Clearinghouse (NYIS)	Index Value of 8.5	This indicator reflects sustainability of forest resources by quantifying biological threats to the ecosystem. The observation data is updated regularly, and since it is an area of great concern (with large risks like the Emerald Ash Borer), it can be expected to be a strong and reliable data source. The index was created to allow for one number to represent both the presence of a species within the region, and how widespread it is. Forestry Stakeholders were not present at Working Group Meeting #2, therefore the indicators were not discussed.

Climate Change Adaptation Indicators

ADAPTATION
POTENTIAL INDICATORS

Indicator	Description	Calculation	Data Required	Data Availability	General Notes
Reduction in number of reported customers with power outages	Indicates trend in effectiveness of adaptation/resiliency activities	(Previous Year reported customer power outages) - (Current Year reported customer power outages)	FEMA reporting	FEMA, regional utilities	NYSERDA ClimAID
Reduction in energy expenditures (by sector and fuel type)	Indicates trend in effectiveness of adaptation/resiliency activities	(Previous Year Energy Expenditures) - (Current Year energy expenditures)	US Census, local utilities	Regional utilities	NYSERDA ClimAID
Increase in total cash receipts for crops and livestock	Indicates trend in effectiveness of adaptation/resiliency activities	(Current Year Agricultural Receipts) - (Previous Year Agricultural Receipts)	NYS Department of Agriculture	Required reporting at State level	NYSERDA ClimAID
Reduction in highway infrastructure landslide repair	Indicates trend in effectiveness of adaptation/resiliency activities	(Previous Year Landslide Highway Repair Costs) - (Current Year Landslide Highway Repair Costs)	County level - Multi-Hazard Mitigation Plans	Town/village/municipalty reporting	Yates County Hazard Mitigation Plan
Reduction in Total Debris (in tons) per hurricane	Indicates trend in effectiveness of adaptation/resiliency activities	(Previous Year Hurricane Debris) - (Current Year Hurricane Debris)	County level - Multi-Hazard Mitigation Plans	Town/village/municipalty reporting	NYS Hazard Mitigation Plan
Reduction in landslide incidences	Indicates trend in effectiveness of adaptation/resiliency activities	(Previous Year Landslide Incidences) - (Current Year Landslide Incidences)	County level - Multi-Hazard Mitigation Plans	Town/village/municipalty reporting	Yates County Hazard Mitigation Plan
Reduction in Storm damage assessment	Indicates trend in effectiveness of adaptation/resiliency activities	(Previous Year Storm Damage) - (Current Year Storm Damage)	County level - Multi-Hazard Mitigation Plans	Required reporting at town/village/municipality level	Monroe County Hazard Mitigation Plan
Reduction on Repetitive Loss Properties from Floods, Hurricanes, Earthquakes	Indicates trend in effectiveness of adaptation/resiliency activities	(Previous Year Repetitive Losses) - (Current Year Repetitive Losses)	NYS Hazard Mitigation Plan, Office of Emergency Management	Required reporting at State level	NYS Hazard Mitigation Plan
System Average Interruption Frequency Index	Represents current vulnerability of electricity users to disruptions	(Total number of customer interuptions)/(total number of customers served)	Customer interruptions, total customers	Regional utilities	Not required Primary Indicator
Flood zones- economic value of property vulnerable to floods/storm surges	Potential economic impact of damage from climate change	Economic value of property in affected region	FEMA flood Insurance Rate Maps, with assessed value of property	Town/village assessor, federal	Not required Primary Indicator
Reduction in Miles of transport routes, electric circuits, rail and other critical infrastructure threatened by floods/sea level rise in next 50/100 years	Insight into potential vulnerabilities of infrastructure	Proximity analysis using GIS data, with risk review	NY State GIS maps, flood probability maps	NY State	Not required Primary Indicator
Discussion of climate change and adaptation in Hazard Mitigation Plans	Indicates awareness of climate change in hazard risk analysis	No calculation needed; NYSERDA Indicator 7C, p. 15	County level - Multi-Hazard Mitigation Plans	0 out of 9 plans (Note: No information on Ontario County Plan)	Not required Primary Indicator
Flood zones - communities participating in NFIP Community Rating System	Voluntary incentive program, demonstrates awareness of risk	No calculation needed	FEMA reporting		Not required Primary Indicator
Reduction in Number of Sanitary and Combined Sewer Overflows	Impacts of climate change - increased precipitation	No calculation needed	Local reporting or annual DEC reporting	By municipality, region, state	Not required Primary Indicator
Reduction in Agricultural economic losses attributable to temperature, drought, flooding	Indicates vulnerability of agriculture sector to climate change impacts	Summation of agriculture economic losses as covered by agriculture insurance (losses due to temp+drought+flooding)	Total annual agriculture economic loss as covered by agriculture insurance programs	NYS Dept of Agriculture & Markets, USDA National Agriculture Statistics	Secondary Indicator
Percentage of regional water supply governed by "rule curves" (where rule curves are graphs of water levels used to regulate water level to manage demand for navigation levels, reliable water supply, and critical habitats)	Indicates vulnerability of transportation, health and livability, and ecosystems health to climate change impacts	(Number of waterways governed by rule curves)/total water supply sources	Inventory of water supply sources, specific waterways governed by rules curves	NYS Dept of environ Conservation, NY State Thruway Authority Canal Corporation	Secondary Indicator
Reduction in Number of people living in floodplains	Indicates vulnerability of current population	Census estimate of population in floodplains	US Census (detailed), USGS land-use data, FEMA floodplains, Estimate of future flood ranges		Secondary Indicator
Reduction in Insurance premium rates or Number of flood insurance claims	Indication of existing vulnerability	No calculation needed	NY Property Insurance Underwriting Association		Secondary Indicator
Increase in Number of cooling center and ozone action programs	Provision of regional services for vulnerable populations	No calculation needed	Number of public regional centers to provide refuge during heat waves; existence of program to alert residents to high ozone levels	Possibly at village/town level	Secondary Indicator
Increased Proportion of land conserved to total land	Indicates vulnerability of an area to climate change impacts	(Area of conserved land)/total land	NYS Dept of Environ Conserv, NYS Office of Parks Recreation, and Historic Preservation, local assessors office for "conserved land" area	Village/town/city, county, state	Variant of Secondary indicator
Reduction in # of residents put at risk from loss of at least one critical infrastructure services for more than 1 day per year	Measure of improved resiliency from extreme events	(Previous year number of incidents or expenditures)-(Current year number of incidents or expenditures)	Electricity grid reliability (SAIFI and CAIDI), Water mains breaks, Transportation (highway emergency repairs, flight delays, ice jam incidents)	Utility (electricity, water) required reporting; county or region transportation expenditures	Variant of Secondary indicator

ADAPTATION

NYSERDA Indicator Evaluation

	Evaluation Criteria (Weight)					
Indicator	**Consistent with NYSERDA Guidance (3)**	**Consistent with Regional Performance Measure (1)**	**Favored by Stakeholder Group (2)**	**Data Availability (2)**	**Summary Score**	**General Notes**
Reduction in number of reported customers with power outages	0	2	5	3	18	
Reduction in energy expenditures (by sector and fuel type)	0	2	5	2	16	
Increase in total cash receipts for crops and livestock	0	2	5	3	18	
Reduction in highway infrastructure landslide repair	0	2	2	1	8	
Reduction in Total Debris (in tons) per hurricane	0	2	2	1	8	
Reduction in landslide incidences	0	2	2	1	8	
Reduction in Storm damage assessment	0	2	2	3	12	
Reduction on Repetitive Loss Properties from Floods, Hurricanes, Earthquakes	0	2	2	3	12	
System Average Interruption Frequency Index	6	1	5	3	35	
Flood zones- economic value of property vulnerable to floods/storm surges	6	1	2	3	29	
Reduction in Miles of transport routes, electric circuits, rail and other critical infrastructure threatened by floods/sea level rise in next 50/100 years	6	1	2	3	29	
Discussion of climate change and adaptation in Hazard Mitigation Plans	6	1	4	3	33	
Flood zones - communities participating in NFIP Community Rating System	6	1	2	3	29	
Reduction in Number of Sanitary and Combined Sewer Overflows	6	1	3	3	31	
Reduction in Agricultural economic losses attributable to temperature, drought, flooding	5	1	5	3	32	
Percentage of regional water supply governed by "rule curves" (where rule curves are graphs of water levels used to regulate water level to manage demand for navigation levels, reliable water supply, and critical habitats)	5	1	2	3	26	
Reduction in Number of people living in floodplains	5	1	2	3	26	
Reduction in Insurance premium rates or Number of flood insurance claims	5	1	2	3	26	
Increase in Number of cooling center and ozone action programs	5	1	2	3	26	
Increased Proportion of land conserved to total land	1	1	5	3	20	
Reduction in # of residents put at risk from loss of at least one critical infrastructure services for more than 1 day per year					0	

ADAPTATION

Place-Sourced Indicator Evaluation

	Evaluation Criteria											
Indicator	**Enrichment of 5 Capitals: Natural**	**Enrichment of 5 Capitals: Built /Manufactured**	**Enrichment of 5 Capitals: Social**	**Enrichment of 5 Capitals: Human**	**Enrichment of 5 Capitals: Financial**	**Diversity**	**Resiliency**	**Life cycle cost and benefit**	**Region's ability to leverage its unique Story of Place - Innovation "Accelerator"**	**Favored by Stakeholder Group**	**Summary Score**	**General Notes**
Reduction in number of reported customers with power outages		1	1		1		1	1		5	10	
Reduction in energy expenditures (by sector and fuel type)		1	1		1		1	1		5	10	
Increase in total cash receipts for crops and livestock	1	1	1		1		1	1		5	11	
Reduction in highway infrastructure landslide repair	1	1			1		1	1		2	7	
Reduction in Total Debris (in tons) per hurricane	1	1	1		1		1	1		2	8	
Reduction in landslide incidences	1	1	1		1		1	1		2	8	
Reduction in Storm damage assessment	1	1	1		1		1	1		2	8	
Reduction on Repetitive Loss Properties from Floods, Hurricanes, Earthquakes	1	1	1		1		1	1		2	8	
System Average Interruption Frequency Index		1			1		1	1		5	9	
Flood zones- economic value of property vulnerable to floods/storm surges					1		1	1		2	5	
Reduction in Miles of transport routes, electric circuits, rail and other critical infrastructure threatened by floods/sea level rise in next 50/100 years		1	1		1		1	1		2	7	
Discussion of climate change and adaptation in Hazard Mitigation Plans				1	1		1			4	7	
Flood zones - communities participating in NFIP Community Rating System			1		1		1	1		2	6	
Reduction in Number of Sanitary and Combined Sewer Overflows	1		1		1		1	1		3	8	
Reduction in Agricultural economic losses attributable to temperature, drought, flooding	1	1	1		1		1	1		5	11	
Percentage of regional water supply governed by "rule curves" (where rule curves are graphs of water levels used to regulate water level to manage demand for navigation levels, reliable water supply, and critical habitats)					1					2	3	
Reduction in Number of people living in floodplains	1	1	1		1		1	1		2	8	
Reduction in Insurance premium rates or Number of flood insurance claims			1		1		1	1		2	6	
Increase in Number of cooling center and ozone action programs			1				1			2	4	
Increased Proportion of land conserved to total land	1					1	1			5	8	
Reduction in # of residents put at risk from loss of at least one critical infrastructure services for more than 1 day per year		1	1	1	1		1	1	1	5	12	

ADAPTATION
Recommended INDICATORS

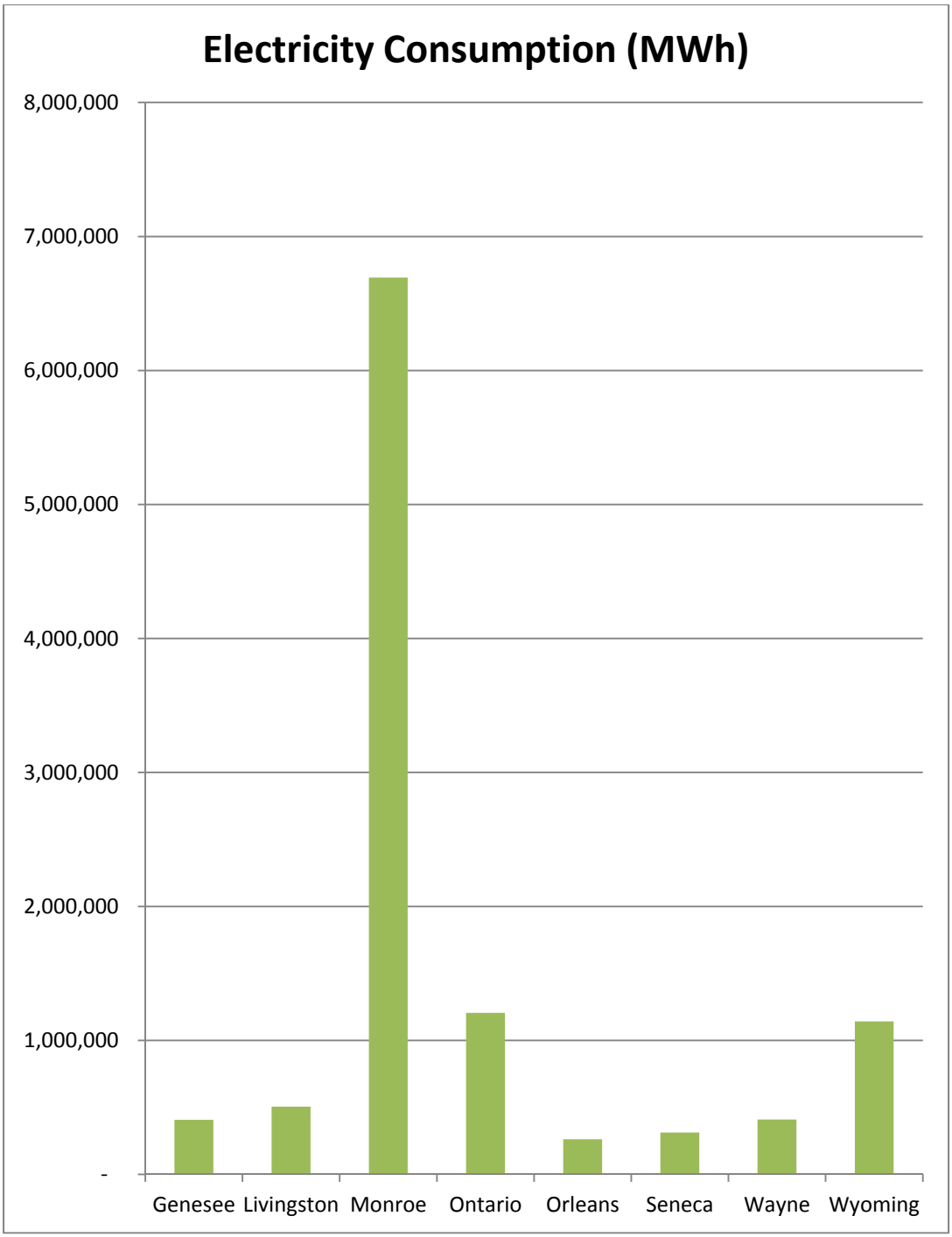
NYSERDA Indicators	Description	Calculation	Data Required/Source	Baseline Value (2010)	General Notes
Discussion of climate change and adaptation in Hazard Mitigation Plans	Indicates awareness of climate change in hazard risk analysis	No calculation needed; NYSERDA Indicator 7C, p. 15	County level - Multi-Hazard Mitigation Plans	0 out of 9 plans (Note: No information on Ontario County Plan)	
Place-Sourced Indicators	**Description**	**Calculation**	**Data Required/Source**	**Baseline Value (2010)**	**General Notes**
Reduction in Agricultural economic losses attributable to temperature, drought, flooding	Indicates vulnerability of agriculture sector to climate change impacts	Annualized Loss % = (Damage Totals (Crops)/Years) / Total State Cash Receipts (Crops)	Total annual agriculture economic loss as covered by agriculture insurance programs	Currently not available at county/regional level	Each farm reports data on direct losses or a loss factor to the state. The finer grained information isn't readily available from NY State Agrigulture Dept. or USDA, but should be requested to make a baseline from each county, and aggregated to a regional indicator.
	Example: Agriculture losses From hail (2007) by county	Annualized Loss % = (Damage Totals (Crops)/Years) / Total State Cash Receipts (Crops)	NY State Hazard Mitigation Plan, Table 3-41; $1.1 M USD		
	Example: NY State payments for Supplemental and Ad Hoc Disaster Assistance	x = Percentage of Supplemental and Adhoc Disaster Assistance / Net Farm Income	USDA Economic Research Services; 1) Farm Income and Wealth 2) Percentage of Supplemental and Adhoc Disaster Assistance, http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics.aspx#27428; $3.4 M, 15% of farm net income		
Reduction in # of residents put at risk from loss of at least one critical infrastructure services for more than 1 day per year	Number of residents experiencing loss of electricity, water and/or transportation services (as calculated from: 1) Electricity grid reliability (SAIFI and CAIDI), 2) Water mains breaks, 3) Transportation emergency repairs/incidents)	SAIFI (System Average Interruption Frequency Index)= (total number of customer interruptions/total number of customers served)		Currently not available at county/regional level	Currently only tracked at state level, each utility has individual reporting. Typically reported to Public Service Comission (PDC). Should be collected at county level - potential data sources:
		CAIDI (Customer Average Interruption Duration Index) = (sum of all customer interruption durations/total number of customer interruptions)			Electric - http://nyssmartgrid.com/wp-content/uploads/2012/09/reliability-study.pdf
		Water main breaks per 100 miles of piping			Water - e.g Monroe County (http://www.mcwa.com/AboutMCWA/HowWeMeasureUp.aspx); Should add #customers without water service; should add duration of water service interuption
		Estimated highway infrastructure and landslide repair (total road miles, est road miles in steep areas, estimated per mile repair)			Transportation - e.g. Yates County Hazard Mitigation Plan, Section 5, p. 23, Table 5-14 (http://www.yatescounty.org/upload/12/4148.pdf) and GTC TransAlert notices; Should be collected at town/county level; should add #residents affected; should add duration of transportation service interruption

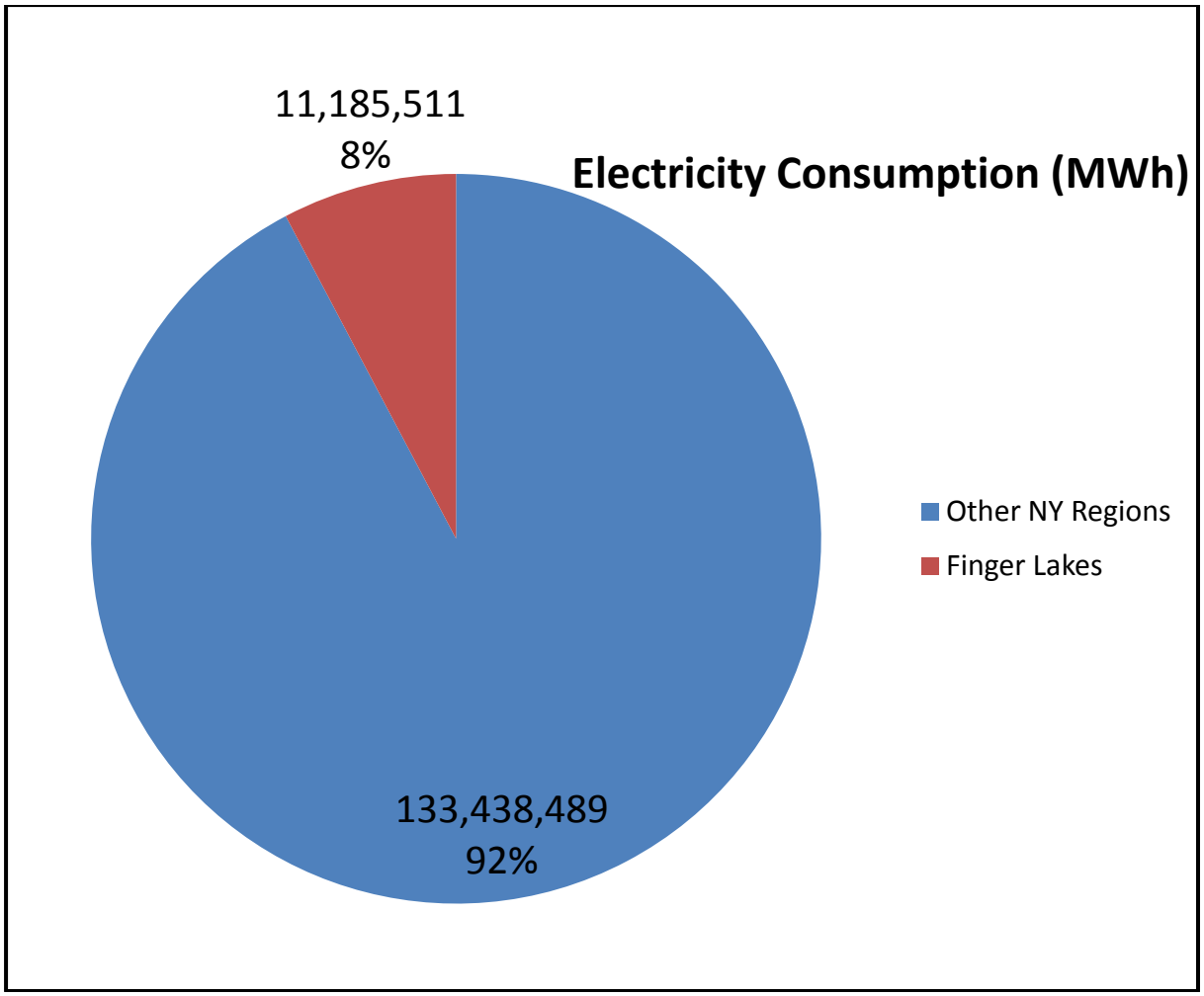
APPENDIX D: BASELINE ASSESSMENT DOCUMENTATION

Energy Baseline

Population*		% of State	% of Region
New York State	**19,378,102**		
Finger Lakes	1,217,156	6.28%	
Genesee	60,079	0.31%	4.94%
Livingston	65,393	0.34%	5.37%
Monroe	744,344	3.84%	61.15%
Ontario	107,931	0.56%	8.87%
Orleans	42,883	0.22%	3.52%
Seneca	35,251	0.18%	2.90%
Wayne	93,772	0.48%	7.70%
Wyoming	42,155	0.22%	3.46%
Yates	25,348	0.13%	2.08%

*US Census 2010


Electricity Consumption (MWh)
8,000,000
7,000,000
6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
-
Genesee
Livingston
Monroe
Ontario
Orleans
Seneca
Wayne
Wyoming


11,185,511
8%
Electricity Consumption (MWh)
Other NY Regions
Finger Lakes
133,438,489
92%

Electricity Consumption Vs. Generation

Total kwh consumption estimate for Finger Lakes in 2010:	**11,185,511**
Total kwh consumption + Grid Loss estimate for Finger Lakes in 2010:	**11,836,507**
Total kwh generated in Finger Lakes in 2010:	**7,001,975**
Total estimated kwh imported into Finger Lakes in 2010:	**4,834,532**

Electricity Consumption and Customers

		Volume energy sales 2010 (kwh)					# of customers 2010
Provider	**County**	**Residential**	**Commercial**	**Industrial**	**Government**	**Total**	**Residential**
Village of Arcade	Wyoming	68,617,745	36,486,374	39,475,674	2,512,183	147,091,976	3,557
Village of Castile	Wyoming						
Village of Bergen	Genesee	7,616,770	4,087,114	22,107,914	653,638	34,465,436	563
Village of Fairport	Monroe	254,889,442	93,804,678	90,676,300	2,025,646	441,396,066	15,436
Village of Holley	Orleans	10,485,841	1,826,610	17,768,464	1,020,111	31,101,026	810
Village of Silver Spings	Wyoming	3,145,045	235,975	1,970,206	253,689	5,604,915	376
Village of Spencerport	Monroe	42,112,017	5,378,243	16,812,026	2,378,939	66,681,225	2,397
Village of Churchville	Monroe	11,298,347	10,639,970	0	280,102	22,218,419	854
Village of Penn Yan	Yates	32,047,754	8,166,264	45,414,835	863,750	86,492,603	2,582
Total Municiple Providers, all counties		430,212,961	160,625,228	234,225,419	9,988,058	835,051,666	23,138
Rochester Gas and Electric	Livingston	50,832,655	24,323,528	29,523,024	37,644,077	142,323,284	
	Monroe	2,120,470,476	2,201,240,978	1,166,309,147	416,534,326	5,904,554,927	
	Ontario	271,383,882	278,766,988	176,855,223	47,468,757	774,474,850	
	Wayne	237,146,057	114,669,282	84,414,541	34,055,556	470,285,436	
	Wyoming	13,444,202	2,651,642	0	1,965,826	18,061,670	
Total RG&E, all counties (in territory)		2,693,277,272	**2,621,652,418**	**1,457,101,935**	**537,668,542**	**7,309,700,167**	
NYSEG	Livingston	61,626,262	24,666,025	7,740,495	6,257,131	100,289,913	
	Ontario	143,867,270	114,390,863	99,291,014	35,435,242	392,984,389	
	Seneca	140,345,742	86,677,737	44,069,175	41,201,993	312,294,647	
	Wayne	166,519,609	77,444,850	122,666,233	34,608,420	401,239,112	
	Wyoming	96,655,844	48,165,547	34,181,254	15,805,282	194,807,927	
	Yates	107,070,512	22,874,998	25,484,308	5,770,652	161,200,470	
Total NYSEG, all counties (in territory)		716,085,239	**374,220,020**	**333,432,479**	**139,078,720**	**1,562,816,458**	
		SC1	SC2	SC3		TOTAL	
National Grid	Genesee	163,894,162	88,248,254	120,793,163		372,935,579	
	Livingston	109,624,606	44,139,013	108,929,739		262,693,358	
	Monroe	140,579,723	45,606,822	72,598,043		258,784,588	
	Ontario	29,405,242	4,966,163	4,341,497		38,712,902	
	Orleans	119,787,376	39,015,817	72,091,655		230,894,848	
	Wyoming	20,801,182	8,903,147	14,265,104		43,969,433	
Total National Grid, all counties (in territory)		584,092,291	**230,879,216**	**393,019,201**	**-**	**1,207,990,708**	-

**National Grid data provided by rate class. Sector breakdown assumed is SC1=residential, SC2=Commercial and Government, SC3=Industrial.

Total Data Provided	Genesee	171,510,932	92,335,368	142,901,077	653,638	407,401,015	
	Livingston	222,083,523	93,128,566	146,193,258	43,901,208	505,306,555	
	Monroe	2,569,350,005	2,356,670,691	1,346,395,516	421,219,013	6,693,635,225	
	Ontario	444,656,394	398,124,014	280,487,734	82,903,999	1,206,172,141	
	Orleans	130,273,217	40,842,427	89,860,119	1,020,111	261,995,874	
	Seneca	140,345,742	86,677,737	44,069,175	41,201,993	312,294,647	
	Wyoming	202,664,018	96,442,685	89,892,238	20,536,980	409,535,921	
	Wayne	403,665,666	356,211,838	299,521,456	82,077,177	1,141,476,137	
	Yates	139,118,266	31,041,262	70,899,143	6,634,402	247,693,073	
Total Provided Data		**4,423,667,763**	**3,551,474,588**	**2,510,219,716**	**700,148,521**	**11,185,510,588**	
	check	**4,423,667,763**					

	Residential	Commercial (and Government)	Industrial	Total
Total of Provided Data	4,423,667,763	4,251,623,109	2,510,219,716	11,185,510,588
% by Sector	40%	38%	22%	

OLD METHOD

Total County and Regional Electricity Consumption, GHG Inventory Protocol Alternative Method (As provided by J. Yienger, Sept 2012) and Tier I Estimates

	County	Residential	Commercial	Industrial	Total From GHG Inventory Protocol Alternative Method	TRC Tier I Regional GHG Inventory Estimate (April 2012)
	Genesee	189,000,982	226,010,724	48,083,385	463,095,090	594,155,393
	Orleans	136,413,669	111,356,575	23,690,916	271,461,160	424,094,371
	Monroe	2,316,112,000	4,143,534,738	881,529,740	7,341,176,478	7,453,217,532
	Wayne	306,955,214	317,787,022	67,608,631	692,350,867	938,951,767
	Wyoming	137,681,814	174,324,813	37,087,298	349,093,925	416,894,765
	Livingston	199,613,215	286,114,798	60,870,421	546,598,433	646,708,561
	Ontario	350,464,844	580,299,070	123,457,608	1,054,221,522	1,080,727,757
	Yates	102,017,856	107,353,386	22,839,244	232,210,487	310,490,029
	Seneca	117,680,164	364,741,719	77,598,160	560,020,044	431,792,805
Total based on alternative allocation method		**3,855,939,757**	**6,311,522,845**	**1,342,765,404**	**11,510,228,006**	**12,297,032,981**

Combined Data

Data source and assumptions	County	Residential	Commercial (and Government)	Industrial		Total	
100% Territory covered by Data Provided by Utilities	**Genesee**	171,510,932	92,989,006	142,901,077		407,401,015	
100% Territory covered by Data Provided by Utilities	**Orleans**	130,273,217	41,862,538	89,860,119		261,995,874	
GHG Inventory Protocol Alternative Method	**Monroe**	2,316,112,000	4,143,534,738	881,529,740		7,341,176,478	
GHG Inventory Protocol Alternative Method	**Wayne**	306,955,214	317,787,022	67,608,631		692,350,867	
Industrial data from Data Provided by Utilities, others from GHG Inventory Protocol Alternative Method	**Wyoming**	137,681,814	174,324,813	89,892,238		401,898,865	
Industrial data from Data Provided by Utilities, others from GHG Inventory Protocol Alternative Method	**Livingston**	199,613,215	286,114,798	146,193,258		631,921,271	
GHG Inventory Protocol Alternative Method	**Ontario**	350,464,844	580,299,070	123,457,608		1,054,221,522	
Industrial data from Data Provided by Utilities, others from GHG Inventory Protocol Alternative Method	**Yates**	102,017,856	107,353,386	70,899,143		280,270,385	
GHG Inventory Protocol Alternative Method	**Seneca**	117,680,164	364,741,719	77,598,160		560,020,044	
Total Estimated Regional Electricity Consumption		**3,832,309,255**	**6,109,007,091**	**1,689,939,975**		**11,631,256,320**	

Village of Arcade

Residential (601)			Commercial (602a)			Commercial (602b)			Industrial (603)			Government (604)			Government (605)			Government (606a)			Government (606b)			Government (607)			Government (608)			Government (610)		
Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh
January	3,549	8,194,404	January	248	191,053	January	249	2,976,561	January	16	3,494,914	January	4	38,653	January	8	17,640	January	11	1,968	January	10	122,544	January	6	847	January	2	1,760	January	23	49,838
February	3,553	9,809,145	February	250	216,676	February	249	3,297,299	February	16	4,083,422	February	4	38,653	February	8	17,640	February	11	2,944	February	10	146,383	February	6	847	February	2	1,015	February	23	49,907
March	3,561	10,156,751	March	250	232,692	March	249	3,418,106	March	15	4,301,792	March	4	38,617	March	8	17,640	March	11	3,476	March	10	149,881	March	6	847	March	2	2,760	March	23	49,894
April	3,562	7,422,783	April	249	173,976	April	249	2,790,911	April	16	3,409,312	April	4	38,617	April	8	17,640	April	11	2,620	April	10	111,006	April	6	847	April	2	2,935	April	23	49,788
May	3,562	5,850,093	May	249	144,149	May	249	2,901,795	May	16	3,402,680	May	4	38,617	May	8	17,438	May	11	1,768	May	10	99,639	May	6	847	May	2	1,620	May	23	49,598
June	3,552	4,293,241	June	249	108,379	June	249	2,732,222	June	16	3,117,655	June	11	38,617	June	20	17,438	June	11	1,990	June	10	90,865	June	6	847	June	3	2,176	June	23	49,598
July	3,556	3,293,905	July	249	99,775	July	251	2,652,251	July	16	2,840,711	July	11	28,617	July	20	17,438	July	11	1,961	July	10	66,177	July	6	847	July	3	2,843	July	23	49,542
August	3,550	3,387,930	August	250	104,977	August	250	2,694,622	August	15	2,689,911	August	11	38,617	August	20	17,438	August	11	2,789	August	10	65,645	August	6	847	August	3	2,504	August	23	49,907
September	3,555	3,181,087	September	249	103,391	September	250	2,921,025	September	16	2,880,909	September	11	38,523	September	20	17,438	September	11	1,499	September	10	67,003	September	6	847	September	3	3,524	September	23	49,821
October	3,561	3,457,716	October	250	104,911	October	249	2,737,352	October	16	2,880,371	October	11	38,476	October	20	17,438	October	11	1,402	October	10	65,509	October	6	847	October	3	2,388	October	23	49,747
November	3,554	4,056,759	November	249	106,078	November	248	2,648,985	November	15	2,988,108	November	11	38,476	November	20	17,438	November	11	3,716	November	10	87,435	November	6	847	November	3	4,554	November	23	49,711
December	3,564	5,513,931	December	249	135,881	December	248	2,993,307	December	16	3,385,889	December	11	38,476	December	20	17,438	December	11	2,617	December	10	110,913	December	6	847	December	3	1,968	December	23	49,848
Total	**3,557**	**68,617,745**	**Total**	**249**	**1,721,938**	**Total**	**249**	**34,764,436**	**Total**	**16**	**39,475,674**	**Total**	**8**	**452,959**	**Total**	**15**	**210,064**	**Total**	**11**	**28,750**	**Total**	**10**	**1,183,000**	**Total**	**6**	**10,164**	**Total**	**3**	**30,047**	**Total**	**23**	**597,199**

2010 kwh hours				2010 Customer Accounts			
Residential	Commercial	Industrial	Government	Residential	Commercial	Industrial	Government
68,617,745	36,486,374	39,475,674	2,512,183	3,557	498	16	76

Source:
Jan 2010-May 2010: Municipal Electric Utilities Annual Report of the Village ofArcade year ended May 31, 2010
June 2010-December 2010: Municipal Electric Utilities Annual Report of the Village of of Arcade year ended May 31,2011
Provided by Paul Darmetko Jr., Utility Engineer, NYSDPS - Tariffs, Electric Supply and Small Utility Section (paul.darmetko@dps.ny.gov)

Village of Bergen

Residential (601)			Commercial (602)			Industrial (603)			Government (604)			Government (606)			Government (610)		
Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh
January	563	1,070,988	January	82	412,450	January	3	343,916	January	0	62,652	January	14	62,652	January	0	3,459
February	562	897,011	February	81	364,900	February	3	336,632	February	0	52,666	February	14	52,666	February	0	3,459
March	562	707,322	March	81	351,295	March	3	334,314	March	0	39,821	March	14	39,821	March	0	3,459
April	562	478,744	April	82	300,809	April	3	420,820	April	0	24,510	April	14	24,510	April	0	3,459
May	562	472,522	May	82	319,628	May	3	641,832	May	0	21,339	May	12	21,339	May	0	3,459
June	562	423,955	June	82	316,023	June	3	2,486,400	June	1	8,245	June	10	7,616	June	1	3,459
July	563	510,123	July	81	356,484	July	3	2,671,200	July	1	8,245	July	10	10,330	July	1	3,459
August	564	509,651	August	81	387,903	August	3	4,533,600	August	1	8,245	August	10	14,825	August	1	3,459
September	564	407,379	September	81	311,494	September	3	4,456,800	September	1	8,245	September	10	11,617	September	1	3,459
October	564	446,049	October	81	277,517	October	3	2,869,200	October	1	8,245	October	10	19,199	October	1	3,459
November	564	744,148	November	84	332,331	November	3	2,670,000	November	1	8,245	November	10	19,199	November	1	3,459
December	564	948,878	December	83	356,280	December	3	343,200	December	1	8,245	December	10	69,653	December	1	3,459
Total	**563**	**7,616,770**	**Total**	**82**	**4,087,114**	**Total**	**3**	**22,107,914**	**Total**	**1**	**258,703**	**Total**	**12**	**353,427**	**Total**	**1**	**41,508**

2010 kwh hours				2010 Customer Accounts			
Residential	Commercial	Industrial	Government	Residential	Commercial	Industrial	Government
7,616,770	4,087,114	22,107,914	653,638	563	82	3	12

Source:
Jan 2010-May 2010: Municipal Electric Utilities Annual Report of the Village of Bergen year ended May 31, 2010
June 2010-December 2010: Municipal Electric Utilities Annual Report of the Village of of Bergen year ended May 31,2011
Provided by Paul Darmetko Jr., Utility Engineer, NYSDPS - Tariffs, Electric Supply and Small Utility Section (paul.darmetko@dps.ny.gov)

Village of Castile

Residential (601)			Commercial (602)			Industrial (603)			Government (604)			Government (606)			Government (610)		
Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh
January			January			January			January			January			January		
February			February			February			February			February			February		
March			March			March			March			March			March		
April			April			April			April			April			April		
May			May			May			May			May			May		
June			June			June			June			June			June		
July			July			July			July			July			July		
August			August			August			August			August			August		
September			September			September			September			September			September		
October			October			October			October			October			October		
November			November			November			November			November			November		
December			December			December			December			December			December		
Total	#DIV/0!	-	Total	#DIV/0!	-	Total	#DIV/0!	-	Total	#DIV/0!	-	Total	#DIV/0!	-	Total	#DIV/0!	-

2010 kwh hours				2010 Customer Accounts			
Residential	Commercial	Industrial	Government	Residential	Commercial	Industrial	Government
-	-	-	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Source:
Jan 2010-May 2010: Municipal Electric Utilities Annual Report of the Village of Castile year ended May 31, 2010
June 2010-December 2010: Municipal Electric Utilities Annual Report of the Village of of Castile year ended May 31,2011
Provided by Paul Darmetko Jr., Utility Engineer, NYSDPS - Tariffs, Electric Supply and Small Utility Section (paul.darmetko@dps.ny.gov)

Village of Churchville

Residential (601)			Commercial (602)			Commercial (602.1)			Government (604)			Government (606)			Government (607)			Government (610)		
Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh
January	849	1,375,863	January	59	63,383	January	28	760,309	January	8	16,421	January	7	15,569	January	1		January	3	
February	852	1,421,375	February	59	72,408	February	28	939,558	February	8	15,241	February	7	14,739	February	1		February	3	
March	851	998,707	March	59	55,738	March	27	790,205	March	8	12,646	March	8	11,192	March	1		March	7	44
April	851	838,399	April	60	49,090	April	27	791,411	April	8	12,450	April	8	9,584	April	1		April	7	
May	852	685,536	May	60	44,523	May	27	791,705	May	8	10,514	May	8	7,551	May	1		May	7	
June	853	669,798	June	61	43,976	June	27	774,485	June	8	9,430	June	8	6,762	June	1		June	7	
July	854	901,992	July	61	51,565	July	27	801,835	July	8	9,647	July	8	6,841	July	1		July	7	
August	854	859,423	August	61	49,113	August	27	904,620	August	8	10,366	August	8	4,510	August	1		August	7	
September	856	721,970	September	61	44,553	September	27	815,205	September	8	12,100	September	8	10,027	September	1		September	7	
October	858	667,675	October	61	44,059	October	27	841,607	October	8	13,222	October	8	7,328	October	1		October	7	
November	858	847,705	November	61	49,828	November	27	943,971	November	8	16,200	November	7	8,638	November	1		November	7	
December	859	1,309,904	December	61	64,598	December	27	852,225	December	8	27,067	December	7	12,057	December	1		December	7	
Total	854	11,298,347	Total	60	632,834	Total	27	10,007,136	Total	8	165,304	Total	8	114,798	Total	1	-	Total	6	44

2010 kwh hours				2010 Customer Accounts			
Residential	Commercial	Industrial	Government	Residential	Commercial	Industrial	Government
11,298,347	10,639,970		280,102	854	88	27	16

Source:
January 2010-February 2010: Municipal Electric Utilities Annual Report of the Village of Churchville year ended February 28, 2010
March 2010-December 2010: Municipal Electric Utilities Annual Report of the Village of of Chuchville year ended February 28,2011
Provided by Paul Darmetko Jr., Utility Engineer, NYSDPS - Tariffs, Electric Supply and Small Utility Section (paul.darmetko@dps.ny.gov)

Village of Fairport

Residential (601)			Commercial (602.0)			Commercial (602.1)			Industrial (603)			Government (604)			Government (605)			Government (605.1)			Government (606)			Government (606.1)			Government (606.2)			Government (610)		
Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	customers	kWh	Month	customers	kWh	Month	customers	kWh	Month	customers	kWh	Month	customers	kWh	Month	customers	kWh
January	15,234	31,964,980	January	1,192	3,173,365	January	135	6,352,647	January	15	7,094,360	January	6	79,101	January	26	17,249	January	20	24,930	January	16	49,523	January	2	71,440	January	2	145	January	12	13,510
February	15,218	30,385,017	February	1,190	3,086,314	February	135	6,615,377	February	15	7,410,540	February	6	75,789	February	26	16,875	February	20	24,930	February	16	42,088	February	2	65,440	February	2	145	February	12	13,380
March	15,232	27,849,255	March	1,189	2,825,165	March	134	6,023,462	March	15	7,003,680	March	6	72,419	March	26	16,816	March	20	24,930	March	16	36,346	March	2	60,480	March	2	145	March	12	13,410
April	15,250	19,990,113	April	1,193	2,302,005	April	134	5,683,627	April	15	7,251,880	April	6	71,889	April	26	16,658	April	20	24,930	April	16	34,208	April	2	42,240	April	2	145	April	12	13,310
May	15,286	16,496,735	May	1,198	1,921,496	May	127	4,704,698	May	15	6,998,820	May	6	69,927	May	27	17,157	May	20	24,930	May	16	23,138	May	2	27,000	May	2	145	May	12	13,310
June	15,280	15,662,955	June	1,194	1,998,262	June	128	5,109,062	June	15	7,679,520	June	6	68,531	June	27	16,757	June	20	24,930	June	16	25,685	June	2	32,160	June	2	145	June	12	13,310
July	15,309	18,444,275	July	1,189	2,107,176	July	128	5,299,655	July	15	8,235,880	July	6	69,821	July	27	16,790	July	20	24,930	July	16	28,470	July	2	24,880	July	2	145	July	12	13,310
August	15,321	21,265,581	August	1,195	2,227,362	August	129	5,314,900	August	15	7,987,980	August	6	68,084	August	27	16,815	August	20	24,930	August	16	33,456	August	2	40,360	August	2	145	August	12	13,310
September	16,294	18,524,919	September	1,194	2,094,477	September	130	5,061,892	September	15	8,078,400	September	6	68,766	September	27	16,855	September	20	24,930	September	16	29,921	September	2	35,400	September	2	145	September	12	13,340
October	16,305	15,141,282	October	1,193	1,920,944	October	128	5,012,425	October	15	8,085,480	October	6	70,907	October	27	17,249	October	20	24,930	October	16	27,218	October	2	28,600	October	2	145	October	12	13,340
November	15,277	16,391,565	November	1,192	1,971,635	November	128	4,936,759	November	15	7,451,300	November	6	72,644	November	27	17,193	November	20	24,930	November	16	27,436	November	2	31,480	November	2	145	November	12	13,340
December	15,225	22,772,765	December	1,193	2,454,234	December	128	5,607,739	December	15	7,398,460	December	6	73,379	December	27	17,765	December	21	24,995	December	16	36,326	December	2	39,600	December	2	145	December	12	13,295
Total	**15,436**	**254,889,442**	**Total**	**1,193**	**28,082,435**	**Total**	**130**	**65,722,243**	**Total**	**15**	**90,676,300**	**Total**	**6**	**861,257**	**Total**	**27**	**204,179**	**Total**	**20**	**299,225**	**Total**	**16**	**393,815**	**Total**	**2**	**499,080**	**Total**	**2**	**1,740**	**Total**	**12**	**160,165**

2009-2010 kwh hours				2009-2010 Customer Accounts			
Residential	Commercial	Industrial	Government	Residential	Commercial	Industrial	Government
254,889,442	93,804,678	90,676,300	2,025,646	15,436	1,323	15	85

Source:
January 2010-February 2010: Municipal Electric Utilities Annual Report of the Village of Churchville year ended February 28, 2010
March 2010-December 2010: Municipal Electric Utilities Annual Report of the Village of of Chuchville year ended February 28,2011
Provided by Paul Darmetko Jr., Utility Engineer, NYSDPS - Tariffs, Electric Supply and Small Utility Section (paul.darmetko@dps.ny.gov)

Village of Holley

Residential (601)			Commercial (601.1)			Commercial (602)			Commercial (602.1)			Industrial (603)			Government (605)			Government (606)			Government (607)			Government (610)			Government (610.1)		
Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh
January	806	1,427,635	January	20	28,396	January	101	182,925	January	4	765	January	32	1,504,228	January	1	28,396	January	22	85,668	January	1	300	January	23	1,898	January	1	65
February	807	1,628,999	February	20	41,372	February	101	215,076	February	4	1,158	February	32	1,962,884	February	1	41,372	February	22	90,382	February	1	300	February	23	1,898	February	1	65
March	811	794,494	March	20	21,703	March	100	118,878	March	4	463	March	32	1,075,635	March	1	21,703	March	22	50,426	March	1	300	March	21	1,768	March	1	65
April	807	802,849	April	20	20,792	April	100	127,985	April	4	360	April	32	1,271,990	April	1	20,792	April	22	53,130	April	1	300	April	21	1,768	April	1	65
May	806	624,143	May	20	16,015	May	100	102,434	May	4	373	May	32	1,523,432	May	1	16,015	May	22	41,830	May	1	300	May	21	1,768	May	1	65
June	812	617,386	June	20	14,094	June	100	107,394	June	4	366	June	32	1,351,765	June	1	85,999	June	22	42,290	June	1	300	June	21	1,768	June	1	65
July	808	691,491	July	20	16,268	July	101	111,163	July	4	377	July	37	1,347,741	July	1	12,189	July	22	43,026	July	1	300	July	21	1,768	July	1	65
August	816	664,504	August	20	16,296	August	102	111,163	August	4	405	August	33	1,356,780	August	1	2,463	August	22	46,439	August	1	300	August	21	1,768	August	1	65
September	806	684,773	September	20	15,641	September	101	115,073	September	4	437	September	33	1,570,560	September	1	29,507	September	22	49,887	September	1	300	September	21	1,768	September	1	65
October	821	574,327	October	20	13,989	October	101	99,954	October	4	449	October	33	1,653,467	October	1	22,404	October	22	44,593	October	1	300	October	21	1,768	October	1	65
November	807	846,020	November	20	21,604	November	101	125,577	November	4	479	November	33	1,652,202	November	1	18,898	November	22	51,026	November	1	300	November	21	1,768	November	1	65
December	811	1,129,220	December	20	31,763	December	102	145,044	December	4	379	December	32	1,497,780	December	1	24,810	December	22	71,010	December	1	300	December	21	1,768	December	1	65
Total	**810**	**10,485,841**	**Total**	**20**	**257,933**	**Total**	**101**	**1,562,666**	**Total**	**4**	**6,011**	**Total**	**33**	**17,768,464**	**Total**	**1**	**324,548**	**Total**	**22**	**669,707**	**Total**	**1**	**3,600**	**Total**	**21**	**21,476**	**Total**	**1**	**780**

2010 kwh hours				2010 Customer Accounts			
Residential	Commercial	Industrial	Government	Residential	Commercial	Industrial	Government
10,485,841	1,826,610	17,768,464	1,020,111	810	125	33	46

Source:
Jan 2010-May 2010: Municipal Electric Utilities Annual Report of the Village of Holley year ended 5-31-2010
June 2010-December 2010: Municipal Electric Utilities Annual Report of the Village of of Holley year ended 5-31-2011
Provided by Paul Darmetko Jr., Utility Engineer, NYSDPS - Tariffs, Electric Supply and Small Utility Section (paul.darmetko@dps.ny.gov)

Village of Penn Yan

Residential (601)			Commercial (602)			Industrial (603)			Government (604)			Government (606)			Government (610)		
Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh
January	2,579	4,753,692	January	361	872,805	January	64	3,663,452	January	0	51,747	January	27	106,306	January	0	5,440
February	2,588	3,879,787	February	366	741,155	February	64	3,990,067	February	0	43,973	February	27	93,268	February	0	4,805
March	2,592	3,702,749	March	364	723,051	March	64	3,384,937	March	0	38,789	March	27	67,868	March	0	4,927
April	2,592	2,582,589	April	362	611,092	April	64	3,722,470	April	0	36,936	April	27	48,823	April	0	3,608
May	2,575	1,833,750	May	362	515,777	May	64	3,468,819	May	0	31,207	May	27	41,584	May	0	3,107
June	2,590	1,845,514	June	392	623,441	June	66	3,947,951	June	1	27,200	June			June	0	5,341
July	2,585	2,035,397	July	386	718,107	July	66	3,857,747	July	1	27,190	July			July	0	5,296
August	2,573	2,020,700	August	386	735,181	August	66	4,137,855	August	1	30,604	August			August	0	4,275
September	2,571	1,843,359	September	385	661,563	September	66	3,933,464	September	1	36,139	September			September	0	5,296
October	2,572	1,798,263	October	387	619,393	October	66	3,885,240	October	1	36,685	October			October	0	5,330
November	2,578	2,365,495	November	387	611,004	November	66	3,812,044	November	1	39,710	November			November	0	5,296
December	2,586	3,386,459	December	387	733,695	December	66	3,610,789	December	1	47,704	December			December	0	5,296
Total	**2,582**	**32,047,754**	**Total**	**377**	**8,166,264**	**Total**	**65**	**45,414,835**	**Total**	**1**	**447,884**	**Total**	**27**	**357,849**	**Total**	**0**	**58,017**

2010 kwh hours				2010 Customer Accounts			
Residential	Commercial	Industrial	Government	Residential	Commercial	Industrial	Government
32,047,754	8,166,264	45,414,835	863,750	2,582	377	65	28

Source:
Jan 2010-May 2010: Municipal Electric Utilities Annual Report of the Village of Pann Yan year ended May 31, 2010
June 2010-December 2010: Municipal Electric Utilities Annual Report of the Village of of Penn Yan year ended May 31,2011
Provided by Paul Darmetko Jr., Utility Engineer, NYSDPS - Tariffs, Electric Supply and Small Utility Section (paul.darmetko@dps.ny.gov)

Village of Silver Springs

Residential (601)			Commercial (602)			Industrial (603)			Government (604)			Government (606)			Government (610)		
Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh
January	376	366,221	January	40	21,415	January	20	192,936	January	6	14,716	January	8	8,369	January	6	1,056
February	377	420,749	February	41	37,364	February	20	175,425	February	6	16,615	February	8	10,605	February	6	1,251
March	379	247,059	March	39	17,801	March	20	133,641	March	6	12,090	March	8	8,251	March	6	853
April	382	238,500	April	38	17,709	April	20	139,642	April	6	12,008	April	9	8,123	April	5	901
May	378	223,191	May	41	16,832	May	20	142,722	May	6	9,925	May	9	7,573	May	5	709
June	377	207,641	June	41	17,534	June	20	182,246	June	6	9,173	June	9	7,431	June	5	685
July	377	251,345	July	41	19,934	July	20	204,168	July	4	9,021	July	8	8,064	July	8	637
August	377	249,083	August	41	18,313	August	20	200,569	August	6	10,112	August	8	7,365	August	6	758
September	374	196,813	September	41	14,579	September	19	158,709	September	6	10,659	September	8	6,513	September	6	768
October	373	236,051	October	42	17,283	October	19	146,351	October	6	12,574	October	7	7,250	October	6	865
November	371	244,822	November	42	17,908	November	18	143,193	November	6	16,187	November	7	7,664	November	6	1,142
December	370	263,570	December	42	19,303	December	19	150,604	December	6	14,790	December	6	7,811	December	6	1,175
Total	**376**	**3,145,045**	**Total**	**41**	**235,975**	**Total**	**20**	**1,970,206**	**Total**	**6**	**147,870**	**Total**	**8**	**95,019**	**Total**	**6**	**10,800**

2010 kwh hours				2010 Customer Accounts			
Residential	Commercial	Industrial	Government	Residential	Commercial	Industrial	Government
3,145,045	235,975	1,970,206	253,689.00	376	41	20	20

Source:
Jan 2010-May 2010: Municipal Electric Utilities Annual Report of the Village of of Silver Springs year ended May 31, 2010
June 2010-December 2010: Municipal Electric Utilities Annual Report of the Village of of Silver Springs year ended May 31, 2011
Provided by Paul Darmetko Jr., Utility Engineer, NYSDPS - Tariffs, Electric Supply and Small Utility Section (paul.darmetko@dps.ny.gov)

Village of Spencerport

Residential (601)			Residential (601.1)			Residential (601.2)			Commercial (602)			Commercial (602.1)			Commercial (602.2)			Industrial (603)			Industrial (603.1)			Government (604)			Government (606)			Government (610)		
Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh	Month	Customers	kWh
January	1,482	4,044,905	January	804	1,842,946	January	98	244,455	January	229	519,429	January	48	102,424	January	2	675	January	58	1,213,516	January	4	366,266	January	4	366,266	January	18	62,152	January	54	19,140
February	1,485	3,397,228	February	805	1,528,397	February	98	209,588	February	230	534,485	February	48	112,870	February	2	606	February	58	1,335,296	February	4	430,558	February	4	430,558	February	19	69,671	February	54	19,140
March	1,486	2,983,792	March	804	1,309,279	March	98	171,488	March	260	380,977	March	48	83,487	March	2	648	March	58	987,449	March	4	316,477	March	4	316,477	March	19	50,358	March	54	19,140
April	1,492	2,095,947	April	812	1,079,758	April	98	158,839	April	229	349,552	April	48	75,715	April	2	278	April	59	1,007,700	April	4	286,340	April	4	286,340	April	18	27,170	April	54	19,140
May	1,490	1,604,620	May	809	785,917	May	98	111,283	May	226	296,693	May	48	64,283	May	2	119	May	58	920,252	May	4	265,371	May	4	265,371	May	18	13,904	May	54	19,140
June	1,487	1,499,883	June	805	860,035	June	98	130,714	June	228	327,308	June	48	75,940	June	2	659	June	57	985,117	June	4	379,275	June	4	15,989	June	18	12,620	June	38	18,980
July	1,498	1,603,193	July	812	894,777	July	98	139,114	July	229	336,715	July	48	76,929	July	2	971	July	57	880,287	July	4	266,110	July	4	14,497	July	18	13,467	July	38	18,980
August	1,491	1,777,530	August	812	1,006,880	August	98	138,542	August	231	360,510	August	50	84,710	August	2	844	August	58	1,060,166	August	4	283,583	August	4	16,746	August	18	16,038	August	38	18,980
September	1,495	1,806,404	September	815	1,031,157	September	98	139,317	September	227	306,702	September	48	71,659	September	2	996	September	58	1,051,917	September	4	237,357	September	4	18,169	September	18	12,832	September	38	18,980
October	1,492	1,348,806	October	808	654,424	October	98	105,344	October	231	268,813	October	51	63,053	October	2	89	October	58	1,125,062	October	4	249,548	October	4	20,738	October	18	13,009	October	38	18,980
November	1,493	1,815,316	November	813	901,733	November	98	124,211	November	231	299,034	November	50	64,137	November	2	104	November	58	1,157,962	November	4	284,667	November	4	23,653	November	18	20,629	November	38	18,980
December	1,491	3,011,897	December	806	1,373,885	December	98	180,413	December	228	427,338	December	50	89,163	December	2	328	December	58	1,394,252	December	4	327,498	December	4	23,991	December	18	39,734	December	38	18,980
Total	**1,490**	**26,989,521**	**Total**	**809**	**13,269,188**	**Total**	**98**	**1,853,308**	**Total**	**232**	**4,407,556**	**Total**	**49**	**964,370**	**Total**	**2**	**6,317**	**Total**	**58**	**13,118,976**	**Total**	**4**	**3,693,050**	**Total**	**4**	**1,798,795**	**Total**	**18**	**351,584**	**Total**	**45**	**228,560**

2010 kwh hours				2010 Customer Accounts			
Residential	Commercial	Industrial	Government	Residential	Commercial	Industrial	Government
42,112,017	5,378,243	16,812,026	2,378,939.00	2,397	282	129	348

Source:
Jan 2010-May 2010: Municipal Electric Utilities Annual Report of the Village of Spencerport Year Ended May 31, 2010
June 2010-December 2010: Municipal Electric Utilities Annual Report of the Village of Spencerport Year Ended May 31, 2011
Provided by Paul Darmetko Jr., Utility Engineer, NYSDPS - Tariffs, Electric Supply and Small Utility Section (paul.darmetko@dps.ny.gov)

Transportation Baseline

2A Required Indicator - Transportation
Total Percentage of People Commuting Via Walking, Biking, Transit and Carpooling

County	# of Total Workers 16+ Years Old	# Car, Truck or Van - Drive Alone	% Drive Alone	# Car, Truck or Van - Carpool	% Carpool	Public Transport	% Public Transport	Taxicab	% Taxicab	Motorcycle	% Motorcycle	Bicycle	% Bicycle	Walked	% Walked	Other means	% Other	Worked at Home	% Worked at Home	Total % Check	Total % Commuting via Walking, Biking, Transit, Carpool
Genesee	29,211	24,779	85%	2,435	8%	91	0%	0	0%	65	0%	220	1%	774	3%	159	1%	688	2%	100.00%	12%
Livingston	30,213	24,145	80%	2,683	9%	117	0%	0	0%	56	0%	38	0%	2,011	7%	196	1%	967	3%	100.00%	16%
Monroe	341,622	278,122	81%	27,201	8%	9,304	3%	332	0%	723	0%	1,757	1%	11,409	3%	1,791	1%	10,983	3%	100.00%	15%
Ontario	52,608	42,906	82%	4,768	9%	229	0%	0	0%	65	0%	123	0%	1,921	4%	246	0%	2,350	4%	100.00%	13%
Orleans	18,124	15,175	84%	1,797	10%	100	1%	0	0%	6	0%	60	0%	364	2%	179	1%	443	2%	100.00%	13%
Seneca	15,139	12,462	82%	1,370	9%	96	1%	0	0%	59	0%	2	0%	517	3%	106	1%	527	3%	100.00%	13%
Wayne	44,426	36,672	83%	4,518	10%	219	0%	0	0%	111	0%	71	0%	1,281	3%	243	1%	1,311	3%	100.00%	14%
Wyoming	18,017	14,343	80%	2,051	11%	68	0%	0	0%	58	0%	32	0%	796	4%	91	1%	578	3%	100.00%	16%
Yates	11,182	7,999	72%	1,129	10%	57	1%	7	0%	29	0%	125	1%	795	7%	48	0%	993	9%	100.00%	19%
			81%		9%		1%						0%		4%				**Average Region =**		**15%**

National values shown for reference only:

National	139,255,035	105,840,717	76%	14,418,306	10%	6,872,730	5%	163,870	0%	305,097	0%	716,535	1%	########	3%	########	1%	5,759,724	4%	100.00%	**19%**

B08301: MEANS OF TRANSPORTATION TO WORK - Universe: Workers 16 years and over
2006-2010 American Community Survey 5-Year Estimates

As per step by step instructions noted in Common sustainability Indicator Document (page 6)
1-year or 3-year estimate not available for all 9 counties

B08301: MEANS OF TRANSPORTATION TO WORK - Universe: Workers 16 years and over
2006-2010 American Community Survey 5-Year Estimates

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Data and Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, for 2010, the 2010 Census provides the official counts of the population and housing units for the nation, states, counties, cities and towns. For 2006 to 2009, the Population Estimates Program provides intercensal estimates of the population for the nation, states, and counties.

	United States	
	Estimate	Margin of
Total:	139,255,03	+/-120,716
Car, truck, or van:	120,259,02	+/-146,799
Drove alone	105,840,71	+/-113,013
Carpooled:	14,418,306	+/-48,726
In 2-person carpool	11,115,428	+/-37,380
In 3-person carpool	1,932,331	+/-16,127
In 4-person carpool	719,778	+/-7,656
In 5- or 6-person carpool	365,337	+/-5,963
In 7-or-more-person carpool	285,432	+/-5,531
Public transportation (excluding taxicab):	6,872,730	+/-18,857
Bus or trolley bus	3,704,841	+/-18,781
Streetcar or trolley car (carro publico in	89,707	+/-2,375
Subway or elevated	2,294,294	+/-9,573
Railroad	744,223	+/-6,676
Ferryboat	39,665	+/-1,416
Taxicab	163,870	+/-3,001
Motorcycle	305,097	+/-4,675
Bicycle	716,535	+/-7,080
Walked	3,962,070	+/-17,751
Other means	1,215,986	+/-13,285
Worked at home	5,759,724	+/-19,688

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

Workers include members of the Armed Forces and civilians who were at work last week.

While the 2006-2010 American Community Survey (ACS) data generally reflect the December 2009 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities.

Estimates of urban and rural population, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2000 data. Boundaries for urban areas have not been updated since Census 2000. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Source: U.S. Census Bureau, 2006-2010 American Community Survey

Explanation of Symbols:

1. An '**' entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
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5. An '***' entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.
6. An '*****' entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
7. An 'N' entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.
8. An '(X)' means that the estimate is not applicable or not available.

B08301: MEANS OF TRANSPORTATION TO WORK - Universe: Workers 16 years and over
2006-2010 American Community Survey 5-Year Estimates

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Data and Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, for 2010, the 2010 Census provides the official counts of the population and housing units for the nation, states, counties, cities and towns. For 2006 to 2009, the Population Estimates Program provides intercensal estimates of the population for the nation, states, and counties.

	Genesee County, New		Livingston County, New		Monroe County, New		Ontario County, New		Orleans County, New		Seneca County, New		Wayne County, New		Wyoming County, New		Yates County, New	
	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
Total:	29,211	+/-602	30,213	+/-675	341,622	+/-2,274	52,608	+/-792	18,124	+/-544	15,139	+/-480	44,426	+/-829	18,017	+/-436	11,182	+/-389
Car, truck, or van:	27,214	+/-564	26,828	+/-734	305,323	+/-2,505	47,674	+/-916	16,972	+/-567	13,832	+/-516	41,190	+/-888	16,394	+/-413	9,128	+/-386
Drove alone	24,779	+/-603	24,145	+/-726	278,122	+/-2,588	42,906	+/-949	15,175	+/-506	12,462	+/-505	36,672	+/-820	14,343	+/-407	7,999	+/-364
Carpooled:	2,435	+/-313	2,683	+/-317	27,201	+/-1,461	4,768	+/-473	1,797	+/-291	1,370	+/-214	4,518	+/-528	2,051	+/-235	1,129	+/-170
In 2-person carpool	2,033	+/-277	2,198	+/-291	22,783	+/-1,203	3,725	+/-394	1,495	+/-248	1,128	+/-196	3,880	+/-462	1,665	+/-225	803	+/-148
In 3-person carpool	301	+/-164	255	+/-74	2,627	+/-378	631	+/-163	246	+/-123	164	+/-83	382	+/-179	284	+/-79	154	+/-56
In 4-person carpool	85	+/-41	115	+/-70	580	+/-199	293	+/-233	31	+/-26	29	+/-22	124	+/-72	63	+/-33	63	+/-39
In 5- or 6-person carpool	0	+/-123	62	+/-55	721	+/-473	44	+/-37	25	+/-33	37	+/-24	106	+/-63	23	+/-28	89	+/-56
In 7-or-more-person carpool	16	+/-17	53	+/-42	490	+/-145	75	+/-52	0	+/-123	12	+/-19	26	+/-24	16	+/-17	20	+/-30
Public transportation (excluding taxicab):	91	+/-42	117	+/-63	9,304	+/-665	229	+/-93	100	+/-74	96	+/-54	219	+/-82	68	+/-26	57	+/-56
Bus or trolley bus	80	+/-41	103	+/-59	9,029	+/-686	208	+/-83	100	+/-74	96	+/-54	201	+/-77	63	+/-23	49	+/-54
Streetcar or trolley car (carro publico in	0	+/-123	0	+/-123	17	+/-35	0	+/-123	0	+/-123	0	+/-123	0	+/-123	0	+/-123	0	+/-123
Subway or elevated	11	+/-12	0	+/-123	236	+/-117	4	+/-7	0	+/-123	0	+/-123	18	+/-27	5	+/-9	8	+/-14
Railroad	0	+/-123	14	+/-23	12	+/-18	17	+/-29	0	+/-123	0	+/-123	0	+/-123	0	+/-123	0	+/-123
Ferryboat	0	+/-123	0	+/-123	10	+/-15	0	+/-123	0	+/-123	0	+/-123	0	+/-123	0	+/-123	0	+/-123
Taxicab	0	+/-123	0	+/-123	332	+/-148	0	+/-123	0	+/-123	0	+/-123	0	+/-123	0	+/-123	7	+/-12
Motorcycle	65	+/-58	56	+/-32	723	+/-210	65	+/-42	6	+/-6	59	+/-41	111	+/-60	58	+/-39	29	+/-25
Bicycle	220	+/-83	38	+/-29	1,757	+/-271	123	+/-78	60	+/-43	2	+/-4	71	+/-40	32	+/-23	125	+/-55
Walked	774	+/-163	2,011	+/-310	11,409	+/-769	1,921	+/-350	364	+/-112	517	+/-117	1,281	+/-241	796	+/-181	795	+/-224
Other means	159	+/-73	196	+/-108	1,791	+/-262	246	+/-105	179	+/-97	106	+/-72	243	+/-105	91	+/-40	48	+/-36
Worked at home	688	+/-174	967	+/-171	10,983	+/-649	2,350	+/-311	443	+/-119	527	+/-96	1,311	+/-224	578	+/-115	993	+/-199

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS

estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

Workers include members of the Armed Forces and civilians who were at work last week.

While the 2006-2010 American Community Survey (ACS) data generally reflect the December 2009 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective Estimates of urban and rural population, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2000 data. Boundaries for urban areas have not been updated since Census 2000. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.
Source: U.S. Census Bureau, 2006-2010 American Community Survey

Explanation of Symbols:

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2A Required Indicator - Transportation
Annual Vehicle Miles Traveled per Capita

From GHG Inventory:

Regional Total VMT	11,857,221,614	(Annual)
Regional Population	1,217,156	(2010 US Census)

Annual Vehicle Miles Traveled per Capita	**9,742**

Place-Sourced Indicator
2D Secondary Indicator - Transportation
Annual Transportation Energy Consumption per capita

From GHG Inventory (Transportation tabs):

Source	MMBtu/year
On Road	75,702,989
Rail	1,421,751
Marine	218,101
Aircraft	660,343
Non Road	10,835,100
Total	88,838,285
Regional Population	1,217,156

Conversion factor between MMBtu & gallons of gasoline

0.115 MMBtu/gallon gasoline equivalent

Annual Trans Energy Consumption per Capita	**73 MMBtu/capita/year**	**Annual Trans Energy Consumption per Capita**	**635 Gal gasoline/capita/year**
Annual Trans Energy Consumption per Capita (without non-road)	**64 MMBtu/capita/year**	**Annual Trans Energy Consumption per Capita (without non-road)**	**557 Gal gasoline/capita/year**
Annual Trans Energy Consumption per Capita (on-road only)	**62 MMBtu/capita/year**	**Annual Trans Energy Consumption per Capita (on-road only)**	**541 Gal gasoline/capita/year**

Additional information not used for indicator calculations (shown for reference only):

MMBtu/yr by fuel type & mode

	Fuel Type	Finger Lakes NY Annual Energy Consumption (MMBtu/yr)
	Gasoline (E-10)	65,172,504
	Diesel	10,530,485
On-Road	**Total**	**75,702,989**
	Coal	**Finger Lakes NY Annual Energy Consumption (MMBtu/yr)**
	Diesel	1,421,471
	Coal	280
	Electric	0
Rail	**Total**	**1,421,751**
	Fuel Type	**Finger Lakes NY Annual Energy Consumption (MMBtu/yr)**
	Diesel	0
	Residual Fuel Oil	218,101
Marine	**Total**	**218,101**
	Fuel Type	**Finger Lakes Annual Energy Consumption (MMBtu/yr)**
Aircraft	Kerosene Type Jet Fuel	660,343
	Fuel Type	**Finger Lakes NY Annual Energy Consumption (MMBtu/yr)**
	CNG	109,221
	Diesel	5,483,974
	Gasoline	3,924,838
	LPG	1,317,066
Non-road	**Total**	**10,835,100**

Gallons (or other measure)/yr by fuel type & mode & County, if available

	On-Road		Rail		Marine	Aircraft	Non-Road			
County	**Gasoline (E-10) (gal/yr)**	**Diesel (gal/yr)**	**Diesel (gal/yr)**	**Coal (short tons/yr)**	**Residual Fuel Oil (gal/yr)**	**Kerosene Type Jet Fuel (gal/yr)**	**CNG (scf/yr)**	**Diesel (gal/yr)**	**Gasoline (gal/yr)**	**LPG (gal/yr)**
Genesee	50,662,921	9,898,785	2,684,250		-	193,221				
Livingston	36,455,573	7,558,611	263,433		-	129,800				
Monroe	292,565,755	34,642,728	3,715,410		818,129	4,286,001				
Ontario	65,159,817	10,420,809	101,171			47,780				
Orleans	13,721,828	2,160,107	17,965		635,878	14,459				
Seneca	21,306,120	3,747,411	58,215		-	27,932				
Wayne	33,547,789	3,205,061	2,742,210		-	54,549				
Wyoming	16,524,384	2,613,390	611,480	11	-	35,818				
Yates	9,117,053	2,060,963	106,382		-	101,868				
Finger Lakes NY Total	**539,061,239**	**76,307,865**	**10,300,516**	**11**	**1,454,007**	**4,891,428**	**106,246,482**	**39,738,943**	**31,398,706**	**14,315,938**

Units & Conversions Fact Sheet

Massachusetts Institute of Technology

Derek Supple, MIT Energy Club
http://web.mit.edu/mit_energy
Latest Update: 4/15/2007

Prefixes

Metric

pico (p)	$= 10^{-12}$
nano (n)	$= 10^{-9}$
micro (μ)	$= 10^{-6}$
deca (da)	$= 10^{1}$
kilo (k)	$= 10^{3}$
mega (M)	$= 10^{6}$
giga (G)	$= 10^{9}$
tera (T)	$= 10^{12}$
peta (P)	$= 10^{15}$
exa (E)	$= 10^{18}$
zetta (Z)	$= 10^{21}$

Roman

m	$= 10^{3}$
mm	$= 10^{6}$
quad	$= 10^{15}$

Mass

1 kg = 2.205 lb
1 lb = 453.6 g = 16oz
1 metric tonne = 1,000kg = 2,205lb
1 US short ton = 907kg = 2,000lb
1 UK long ton = 1,016kg = 2,239lb

Temperature

°F = 1.8 • °C + 32
°K = (°F – 32) • 5/9 + 273.15

Time

3,600 sec/hour 730 hour/month
365.25 day/year 8,766 hour/year
31,536,000 sec/year

Fuel Economy

1mpg = 0.4251 km/L
mpg = 235.2/ L/100 km

Distance

1 cm = 0.4 in
1 m = 3.281 ft = 1.094 yd
1 km = 0.62137 mi = 199 rod
1 mi = 1.609km
1 smoot = 1.702 m = 5.83 ft

Area

1 m^2 = 10.765 ft^2
1 km^2 = 0.386 mi^2 = 10^6 m^2
1 ha = 10^4 m^2 = .01 km^2 = 2.47 ac
1 mi^2 = 2.6 km^2 = 640 ac
1 ac = 4,047 m^2 = 43,560 ft^2

Pressure

1MPa = 10bar = 9.87atm = 145psi
1atm = 1.0132 bar = 760 mmHg
= 14.696 psi = 10.33 ton/m^3

Volume

1 L = 0.264 gal = 1000 cm^3 (ml)
1 m^3 = 1000 L = 35.3 ft^3 = 264 gal
1 gal = 3.785 L = 4 qt = 16 c = 128 oz
1 ft^3 = cf = 28.32 L = 7.482 gal
1 bbl = 42 U.S. gal = 159 L = 5.6 ft^3
1 cord = 128 ft^3 = 3.62 m^3
1 ac-ft = 43560 ft^3 = 325,851 gal
1 km^3 = 0.24 mi^3 = 810,713 acre-ft
1 bu = 4 pck = 8 gal = 35.2 L = 2,150 in^3

Flow Rates

1mbd = 1 Mbbl/day = 15.34 Ggal/yr
= 694.4 bbl/min = 11.57 bbl/sec
= 485.9 gal/sec
1 ft^3/s = 641 bbl/hr = 449 gal/min (gpm)
1 bbl oil/day ≈ 50 metric ton oil/yr
1 gpm = 0.063 L/s = 0.00442 ac-ft/day

Energy Unit Conversion

1 J = 1 Nm = 1 kgm^2/s^2 = 0.239 cal = 0.74 ft-lb
1 Cal = 1 kcal = 1000 cal = 4.187 KJ = 3.968 Btu
1 KJ = 0.239 Cal = 0.947817 Btu ≈ 0.95 Btu
1 Btu = 1,055.056 J = 0.252 kcal
1 kWh = 3.6 MJ = 3,412 Btu; (1MWh = 3.6 GJ = 3.412 mmBtu)
1 mmBtu = 10^6 Btu = 1.055 GJ = 1 decatherm
1 mcf nat. gas (LHV) = 10.27 therm = 1.027 mmBtu = 1.082 GJ
1 toe = 41.868 GJ = 39.683 mmBtu = 11.63 MWh = 7.33bbl
1 tce = 29.308 GJ = 27.778 mmBtu = 8.141 MWh
1 Quad = 10^{15} Btu = 1.055 EJ = 293 TWh = 25.2 Mtoe=.974 TCF
1 EJ = 10^9 GJ = 10^{18} J = .95 Quad
1 TWyr = 31.5 EJ = 29.86 Quad

Energy Content (*Lower Heating Values*) (ton = metric tonne)

Crude Oil = 6.119 GJ/bbl = 5.8 mmBtu/bbl = 39.7 mmBtu/ton
= 145.7 MJ/gal = 38.5 MJ/L = 43.8 MJ/kg (GJ/ton)
Gasoline = 121.3 MJ/gal (= 32.1 MJ/L = 43.1 MJ/kg = 115 mBtu/gal)
Diesel = 135.5 MJ/gal (= 35.8 MJ/L = 42.8 MJ/kg = 128 mBtu/gal)
Biodiesel = 124.8 MJ/gal (= 33.0 MJ/L = 37.5 MJ/kg = 121 mBtu/gal)
Ethanol = 80.2 MJ/gal (= 21.2 MJ/L = 26.9 MJ/kg = 76 mBtu/gal)
Methanol = 60.4 MJ/gal (= 15.9 MJ/L = 20.1 MJ/kg = 57 mBtu/gal)
UN Standard Coal = 30 GJ/ton
Bituminous = 27-30 GJ/ton (MJ/kg) = 25-28 mmBtu/ton
Sub-Bitum. = 20-26 GJ/ton (MJ/kg) = 19-24 mmBtu/ton
Lignite = 10-19 GJ/ton (MJ/kg) = 9-18 mmBtu/ton
Nat Gas @ STP = 53.2 MJ/kg = 38.2 MJ/m^3 = 1027 Btu/ft^3
CNG @ 20 MPa = 50.0 MJ/kg = 9.3 MJ/L = 249.6 mBtu/ft^3
H_2 @ 35MPa (HHV) = 120.0 MJ/kg = 2.7 MJ/L = 72.5 mBtu/ft3
LPG @ 1.5 MPa = 88.1 MJ/gal = 23.3 MJ/L = 625.5 mBtu/ft3
Air-Dried Wood(20% Moisture Content) = 15 GJ/ton
Uranium = 80 GJ/g fissioned = 400 GJ/kg mined (fn'd =.5% mn'd)

Energy of Familiar Phenomena/Society

Quart of Boiling Water = 3 MJ 1 wooden match = 1 Btu
Melt 1 lb Ice = 151 kJ = 143 Btu
1-GWe Plant running 24 hrs = 260 TJ
Daily Human Metabolism = 2500 kCal/day = 120 W
Compact Passenger Car at steady 60 mph:
Chem. Energy Consumption = 70 kW = 94 hp
Mech. Energy Production = 15 kW = 20 hp
'05 US Oil Use = 20.55 Mbpd = 7.506 Gbbl/yr = 238 bbl/sec
'05 Global Oil Use = 84.37 Mbpd = 31.89 Gbbl/yr = 976.5 bbl/sec
'05 US Primary Energy Use ≈ 3.35 TW ≈ 105 EJ/yr ≈ 100 quad/yr
'05 Global ≈ 16 TW ≈ 504 EJ/yr ≈ 480 quad/yr
Solar Influx at Earth Surface ≈ 100 PW = 3.1 YJ/yr = 200 W/m^2

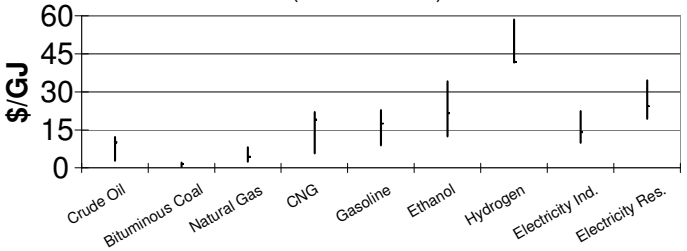
Density

Water = 1 g/cm^3 = 1 g/ml = 1 kg/L = 1 metric tonne/m^3
Air at Sea Level = 1.2 kg/m^3
Crude Oil = 0.88 (0.75 -0.98) kg/L = 7.34 lb/gal = 140 kg/bbl
Gasoline = 0.745 kg/L = 6.22 lb/gal
Diesel = 0.837 kg/L = 7.00 lb/gal; Biodiesel = 0.880 kg/L
Ethanol = 0.789 kg/L = 6.58 lb/gal
Methanol = 0.792 kg/L = 6.61 lb/gal
Nat. Gas = 0.717 kg/m^3 = 44.8 lb/mcf
CNG @ 20MPa = 0.185 kg/L = 11.5 lb/ft^3 = 5.66 lb/gge
LPG (propane) = 0.540 kg/L = 33.7 lb/ft^3
Hydrogen = 0.025 kg/L (35MPa); 0.08988 kg/m^3 (STP)
Coal ≈ 1.32 kg/L = 1230 metric ton/ha-m = 1800 sht ton/acre-foot
API Gravity = (141.5/[Density in g/cm^3 at 60 °F]) - 131.5
Light Crude API > 31.1°; Heavy API < 22.3°; Bitumen API ~ 8°

Power Unit Conversion

1 W = 1 J/s = 3.6 kJ/hour = 31.5 MJ/year
1 kW = 1.341 hp = 738ft-lb/s
1 hp = 745.7 W = 0.7068 Btu/s
1 TW = 10^{12} W = 31.5 EJ/year
1 ton-refrigeration = 12,000 Btu/hr = 200 Btu/min = 3.517 kW

Historic US Retail Prices (US2000$/GJ)



Carbon Dioxide (CO_2) Emission Factors

Note: 44/12 or 3.667 ton CO_2 emissions per ton C emissions

Natural Gas	= 121 lb/mcf	= 117.1 lb/mmBtu =	50.3 kg/GJ
Gasoline	= 19.56 lb/gal	= 156.4 lb/mmBtu =	67.2 kg/GJ
Diesel	= 22.38 lb/gal	= 161.4 lb/mmBtu =	69.4 kg/GJ
Bt. Coal	= 4,931 lb/sht ton	= 205.3 lb/mmBtu =	88.3 kg/GJ
Petrol Coke	= 32.40 lb/gal	= 225.1 lb/mmBtu =	96.8 kg/GJ
Electric US Av	= 1.34 lb/kWh	= 0.608 ton/MWh	= 168.8 kg/GJ
Coal-fired Elec	= 2.095 lb/kWh	= .95 kg/kWh	= 260 kg C/MWh

Global Warming Potential (GWP) (τ = 100yr)

CO_2 = 1 CH_4 = 23 N_2O = 296 SF_6 = 22,200
HFCs = 12 - 12,000 PFCs = 5,700 - 11,900

Rules of Thumb

- 1 Btu = 1,055 J
- 1 kWh = 3.6 MJ = 3,412 Btu
- 1 hp = 746 W
- 1 TW ≈ 30 Quad/yr ≈ 32 EJ/yr
- 23.52 mpg → 10 L/100km → 234 g TtW CO_2/km → 0.832 lb TtW CO_2/mi
- 1 gallon gasoline equivalent (gge) = 121 MJ = 115,000 Btu = 1 kg H_2 = 1.5 gal EtOH
- 1 million barrel oil per day (mbd) = 486 gal/sec = 2.2TJ/yr = 4232 metric ton C/yr
- Nat.Gas: 1 mscf = 0.2832 Nm^3 = 1.027 mmBtu = 10.27 therm
- 3.667 (44/12) ton CO_2 per ton C
- 1 Quad = 10^{15} Btu ≈ 1.05 EJ ≈ 25 Mtoe ≈ 300TWh ≈ 0.974 tcf natural gas

Sources

This sheet was compiled based on several other useful fact sheets and online resources:

- Holdren, J. and H. Lee (2006) ENR302 Course Notes: "Some Units Constants, and Conversions" and "Energy of Familiar Phenomena"
- International Energy Agency (IEA) Energy Statistics Unit Converter http://www.iea.org/Textbase/stats/unit.asp
- U.S. Dept. of Energy, Energy Information Administration (EIA). Kid's Page Energy Calculator http://www.eia.doe.gov/kids/energyfacts/science/energy_calculator.html
- BP plc, Statistical Review of World Energy 2006, Conversion Factors http://www.bp.com/conversionCalculator.do?&contentId=7017990&categoryId=91
- EIA AER "Other Physical Conversion Factors" http://www.eia.doe.gov/emeu/aer/pdf/pages/sec13_13.pdf
- DOE Alternative Fuels Data Center (AFDC) Fuel Properties Table http://www.eere.energy.gov/afdc/pdfs/fueltable.pdf
- Oak Ridge National Lab (ORNL) Bioenergy Program, Conversion Factor Reference http://bioenergy.ornl.gov/papers/misc/energy_conv.html
- United Nations Food and Agriculture Organization (FAO) "Regional Study on Wood Energy Today and Tomorrow" http://www.fao.org/DOCREP/W7744E/w7744e07.htm

Other Physical Property (LHV, Density, Emission Factor) Data Sources

- Wang, Michael Q. (2006) "The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET) Model." Version 1.7. http://www.transportation.anl.gov/software/GREET/index.html
- Farrell, A.E. et al. (2005) EBAMM Release 1.0. http://rael.berkeley.edu/ebamm/
- Brown, D., J. Gillette, B. James, et al. (2006) Hydrogen Analysis (H2A) Project model version 1.0.11, "Physical Property Data" http://www.hydrogen.energy.gov/h2a_production.html
- Weiss, M. A., J. B. Heywood, et al. (2000). "On the Road in 2020, a Life-Cycle Analysis of New Automobile Technologies." Cambridge, MA, Massachusetts Institute of Technology, Energy Laboratory. MIT EL 00-003 RP. http://lfee.mit.edu/public/el00-003.pdf
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- EIA, Voluntary Reporting of Greenhouse Gases Program, Fuel and Energy Source Codes and Emission Coefficients http://www.eia.doe.gov/oiaf/1605/factors.html http://www.eia.doe.gov/oiaf/1605/gg97rpt/appb.html
- IPCC (2001). *Climate Change 2001: The Scientific Basis. Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change.* [Houghton, J.T., Ding, Y., Griggs, D.J., Noguer, M., van der Linden, P.J., Dai, X., Maskell, K. and Johnson, C.A. (eds.)]. Cambridge, UK: Cambridge University Press, 881pp. Technical Summary. Section C6. p.47 . http://www.grida.no/climate/ipcc_tar/wg1/020.htm#c6

Historic Price Range Data Sources

- EIA (2006) Annual Energy Review 2005 and Monthly Energy Review http://www.eia.doe.gov/overview_hd.html
- EIA Petroleum Navigator http://tonto.eia.doe.gov/dnav/pet/pet_pri_top.asp
- EIA Coal News and Markets http://www.eia.doe.gov/cneaf/coal/page/coalnews/coalmar.html
- Bloomberg Energy Market Data http://www.bloomberg.com/energy/
- State of Nebraska Energy Statistics http://www.neo.state.ne.us/statshtml/66.html

Place-Sourced Indicator
Variant on 6A
% Income Spent on Transportation

	from H&T Index (shown for reference only)	Calculated from ACS & H&T data			
County	Average % of Income Spent on Transportation	**Median Household Income ***	**Average Annual Transportation Costs**	**% Income Spent on Transportation**	**Population Distribution**
Genesee	33.23%	$ 50,372.00	$ 15,311.00	30%	60,079
Livingston	31.90%	$ 52,263.00	$ 15,690.52	30%	65,393
Monroe	26.55%	$ 50,868.00	$ 12,939.42	25%	744,344
Ontario	30.94%	$ 56,390.00	$ 15,195.05	27%	107,931
Orleans	32.04%	$ 47,488.00	$ 15,765.23	33%	42,883
Seneca	35.67%	$ 47,092.00	$ 15,535.71	33%	35,251
Wayne	31.66%	$ 52,307.00	$ 15,568.07	30%	93,772
Wyoming	no data	$ 48,549.00	no data	no data	42,155
Yates	no data	$ 46,509.00	no data	no data	25,348
Average Region =	31.7%			**29.8%**	1,217,156
			Weighted regional average by population =		**25.5%**

Median household income from 2008-2010 ACS 3-year Estimate
* in past 12-months (2008-2010 ACS 3-year Estimate)
Average Annual Transportation Costs from H&T Index website

H&T Index info - *concern with this dataset is the lack of regional household income data*
http://htaindex.cnt.org
Calculated by Census group blocks
Subset of data provided as part of the H&T Affordability Index
Start with any county in the find box at the top to narrow down region
Select Transportation Costs % of Income
In the pull down menu to the right, select Summary Table of Statistics
Choose each County in the Region pull down menu
2009 ACS is main dataset

B19013: MEDIAN HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2010 INFLATION-ADJUSTED DOLLARS) - Universe: Households
2008-2010 American Community Survey 3-Year Estimates

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Data and Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, for 2010, the 2010 Census provides the official counts of the population and housing units for the nation, states, counties, cities and towns. For 2008 to 2009, the Population Estimates Program provides intercensal estimates of the population for the nation, states, and counties.

	Genesee County, New		Livingston County, New		Monroe County, New		Ontario County, New		Orleans County, New		Seneca County, New		Wayne County, New		Wyoming County, New		Yates County, New	
	Estimate	Margin of	Estimate	Margin of	Estimate	Margin of	Estimate	Margin of	Estimate	Margin of	Estimate	Margin of	Estimate	Margin of	Estimate	Margin of	Estimate	Margin of
Median household income in the past 12	50,372	+/-2,009	52,263	+/-1,938	50,868	+/-618	56,390	+/-2,072	47,488	+/-3,585	47,092	+/-2,430	52,307	+/-1,730	48,549	+/-2,725	46,509	+/-4,528

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

The methodology for calculating median income and median earnings changed between 2008 and 2009. Medians over $75,000 were most likely affected. The underlying income and earning distribution now uses $2,500 increments up to $250,000 for households, non-family households, families, and individuals and employs a linear interpolation method for median calculations. Before 2009 the highest income category was $200,000 for households, families and non-family households ($100,000 for individuals) and

portions of the income and earnings distribution contained intervals wider than $2,500. Those cases used a Pareto Interpolation Method.

While the 2008-2010 American Community Survey (ACS) data generally reflect the December 2009 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities.

Estimates of urban and rural population, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2000 data. Boundaries for urban areas have not been updated since Census 2000. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Source: U.S. Census Bureau, 2008-2010 American Community Survey

Explanation of Symbols:

1. An '**' entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
2. An '-' entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution.
3. An '-' following a median estimate means the median falls in the lowest interval of an open-ended distribution.
4. An '+' following a median estimate means the median falls in the upper interval of an open-ended distribution.
5. An '***' entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.
6. An '*****' entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
7. An 'N' entry in the estimate and margin of error columns indicates that

data for this geographic area cannot be displayed because the number of sample cases is too small.
8. An '(X)' means that the estimate is not applicable or not available.

Place-Sourced Indicator
Freight tonnage - Truck vs Rail

As noted in *Transportation Strategies for Freight/Goods Movement in the Genesee-Finger Lakes Region - Regional Freight and Economic Profile* , Genesee Transportation Council, Table 4, Page 3-65.

Source: IHS/Global Transearch Database via NYSDOT

Truck Tonnage	203,052,000	(Annual - 2010)
Rail Tonnage	31,294,000	(Annual - 2010)

Table 4 Tons by Mode and Direction, All Commodities, 2010-2035

2010 Tons	Truck	Rail	Air	Water	Total
Inbound	33,883,000	3,490,000	41,000	14,000	**37,428,000**
Internal	14,047,000	0	0	0	**14,047,000**
Outbound	32,891,000	1,434,000	51,000	16,000	**34,392,000**
Through	122,231,000	26,370,000	849,000	17,370,000	**166,820,000**
Total	**203,052,000**	**31,294,000**	**941,000**	**17,400,000**	**252,687,000**
2015 Tons	**Truck**	**Rail**	**Air**	**Water**	**Total**
Inbound	37,232,000	3,459,000	51,000	17,000	**40,758,000**
Internal	15,549,000	0	0	0	**15,549,000**
Outbound	36,381,000	1,486,000	59,000	19,000	**37,945,000**
Through	142,115,000	29,623,000	1,025,000	19,181,000	**191,944,000**
Total	**231,277,000**	**34,568,000**	**1,135,000**	**19,217,000**	**286,197,000**
2020 Tons	**Truck**	**Rail**	**Air**	**Water**	**Total**
Inbound	40,581,000	3,428,000	61,000	19,000	**44,089,000**
Internal	17,051,000	0	0	0	**17,051,000**
Outbound	39,871,000	1,539,000	67,000	21,000	**41,498,000**
Through	161,999,000	32,876,000	1,201,000	20,993,000	**217,069,000**
Total	**259,503,000**	**37,842,000**	**1,328,000**	**21,033,000**	**319,706,000**
2025 Tons	**Truck**	**Rail**	**Air**	**Water**	**Total**
Inbound	43,930,000	3,397,000	70,000	22,000	**47,419,000**
Internal	18,553,000	0	0	0	**18,553,000**
Outbound	43,361,000	1,591,000	74,000	24,000	**45,051,000**
Through	181,883,000	36,129,000	1,377,000	22,804,000	**242,193,000**
Total	**287,728,000**	**41,116,000**	**1,522,000**	**22,850,000**	**353,216,000**
2030 Tons	**Truck**	**Rail**	**Air**	**Water**	**Total**
Inbound	47,280,000	3,366,000	80,000	24,000	**50,750,000**
Internal	20,055,000	0	0	0	**20,055,000**
Outbound	46,852,000	1,644,000	82,000	26,000	**48,603,000**
Through	201,767,000	39,381,000	1,554,000	24,616,000	**267,318,000**
Total	**315,953,000**	**44,391,000**	**1,716,000**	**24,666,000**	**386,726,000**
2035 Tons	**Truck**	**Rail**	**Air**	**Water**	**Total**
Inbound	50,629,000	3,335,000	90,000	27,000	**54,080,000**
Internal	21,557,000	0	0	0	**21,557,000**
Outbound	50,342,000	1,696,000	90,000	29,000	**52,156,000**
Through	221,651,000	42,634,000	1,730,000	26,427,000	**292,442,000**
Total	**344,179,000**	**47,665,000**	**1,909,000**	**26,483,000**	**420,236,000**

Source: IHS/Global Insight Transearch Database, via New York State Department of Transportation

Land Use Baseline

Finger Lakes Regional Sustainability Plan

Map XX-XX:

Finger Lakes Region Land Cover

December 2012 Draft

Legend

- Counties
- Municipalities
- Expressways
- Lakes and Rivers

Land Cover

- Developed
- Undeveloped

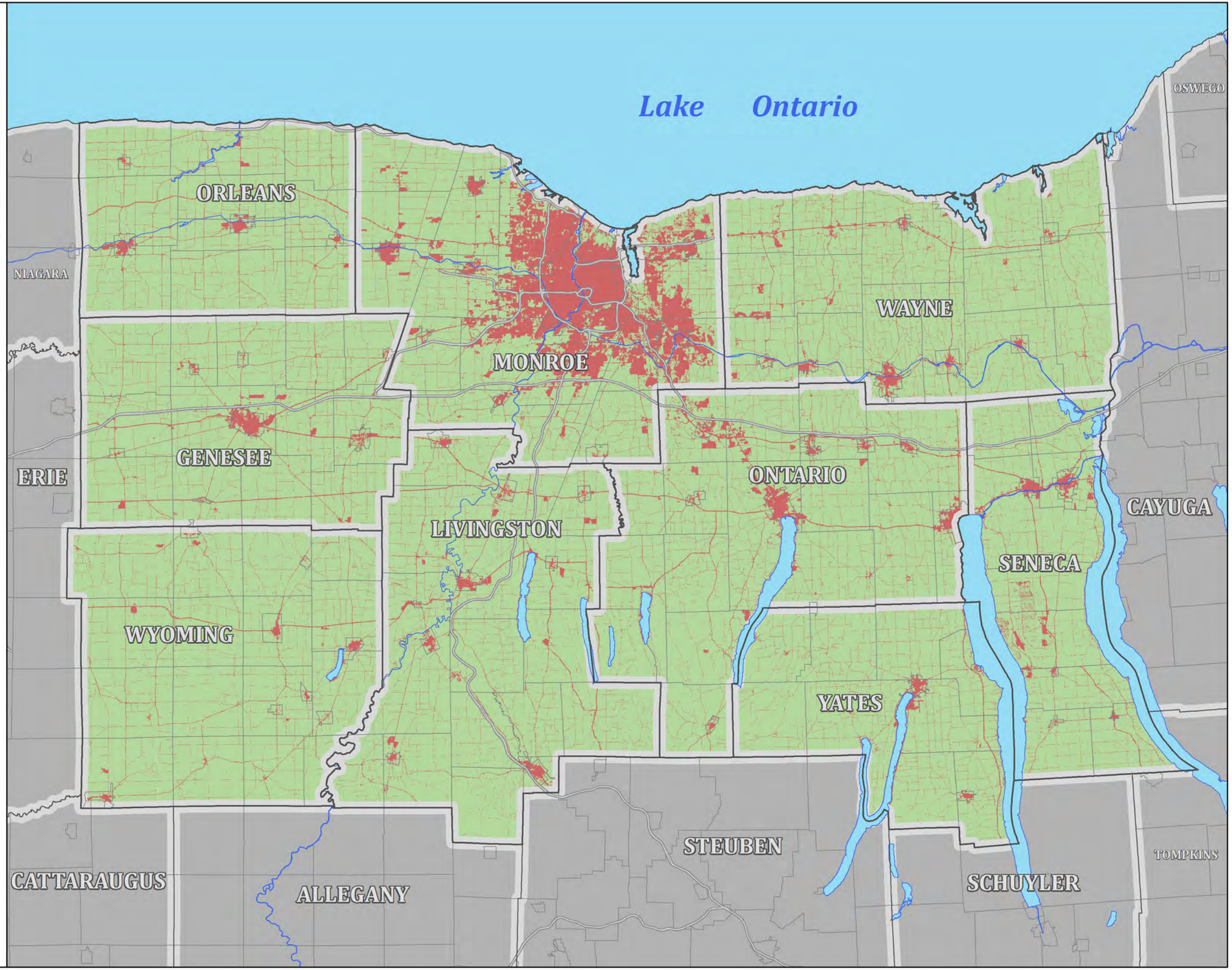
*Note: Developed land includes Developed Open Space, Developed Low Intensity, Developed Medium Intensity, and Developed High Intensity. Undeveloped land includes all other land covers.

N W E S

0 2.5 5 10 Miles

Data Sources: GTC (boundaries, hydrography, roads)
MRLC (NLCD 2006)

Map Design: C&S Companies and Wendel Companies



Indicator: 3A: Land-Use Patterns: Per Capita Land Consumption (required)

	Population	Developed Area		Per Capita Land Consumption*
Genesee	60,079	22,925	7.2%	0.38
Livingston	65,393	26,075	6.4%	0.40
Monroe	744,344	129,833	30.6%	0.17
Ontario	107,931	35,481	8.4%	0.33
Orleans	42,883	16,718	6.6%	0.39
Seneca	35,251	16,976	6.8%	0.48
Wayne	93,772	27,431	7.1%	0.29
Wyoming	42,155	17,343	4.5%	0.41
Yates	25,348	12,347	5.1%	0.49
REGION	**1,217,156**	**305,129**	**9.9%**	**0.25**

* Amount of developed area divided by population (developed acres per person)

Source: Population: US Bureau of the Census, 2010
Developed Area: Multi-Resolution Land Characteristics Consortium (MRLC)
National Land Cover Database (http://www.mrlc.gov/)

Land Cover Data - Finger Lakes region

Type	Land Use	Acreage	Percentage	
Developed	Developed, Open Space	193,661	6.3%	
Developed	Developed, Low Intensity	76,207	2.5%	
Developed	Developed, Medium Intensity	26,272	0.8%	
Developed	Developed, High Intensity	9,111	0.3%	
		305,251	**9.9%**	
Undeveloped	Open Water	102,166	3.3%	
Undeveloped	Barren Land (Rock/Sand/Clay)	5,632	0.2%	
Undeveloped	Deciduous Forest	587,912	19.0%	
Undeveloped	Evergreen Forest	32,293	1.0%	
Undeveloped	Mixed Forest	149,679	4.8%	
Undeveloped	Shrub/Scrub	108,344	3.5%	
Undeveloped	Grassland/Herbaceous	10,420	0.3%	
Undeveloped	Pasture/Hay	831,083	26.9%	
Undeveloped	Cultivated Crops	747,679	24.2%	
Undeveloped	Woody Wetlands	188,026	6.1%	
Undeveloped	Emergent Herbaceous Wetlands	24,721	0.8%	
		2,787,957	**90.1%**	
	TOTAL	**3,093,208**	**100.0%**	

Finger Lakes Regional Sustainability Plan

Map XX-XX:

Finger Lakes Region Poverty Levels

December 2012 Draft

Legend

- Counties
- Municipalities
- Expressways
- Lakes and Rivers

Poverty (2011 5-Year Estimates)

Percent Below Poverty

- < 5%
- 5.1%- 10%
- 10.1% - 15%
- 15.1% - 20%
- 20.1% >

*Note: Only population centers are depicted with 2011 census poverty 5 year estimate data

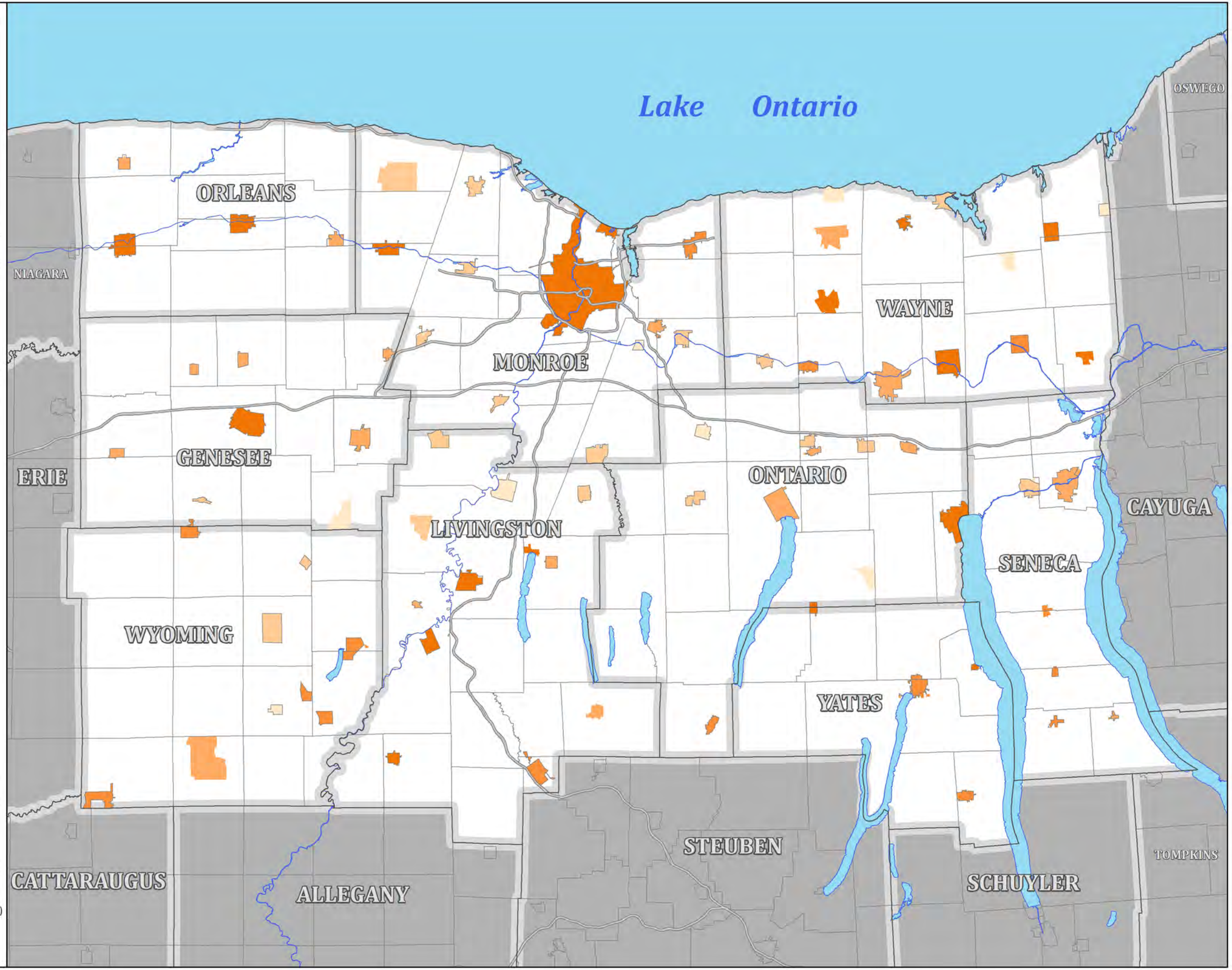
*Note: Percent population below poverty level in region outside centers is 8.1%

N W E S

0 2.5 5 10 Miles

Data Sources: GTC (boundaries, hydrography, roads)
U.S. Census Bureau (2011 5 -Year Poverty Estimates)

Map Design: C&S Companies and Wendel Companies



Indicator: Deconcentration of Poverty

County	Population	Poverty*	
Genesee	60,079	7,510	12.5%
Livingston	65,393	7,651	11.7%
Monroe	744,344	107,186	14.4%
Ontario	107,931	10,469	9.7%
Orleans	42,883	5,189	12.1%
Seneca	35,251	4,124	11.7%
Wayne	93,772	10,409	11.1%
Wyoming	42,155	4,258	10.1%
Yates	25,348	3,904	15.4%
REGION	**1,217,156**	**160,699**	**13.2%**
Centers**	**436,411**	**95,812**	**22.0%**
Region Outside Centers	**780,745**	**64,887**	**8.3%**

* Percentage of persons whose income in the last 12 months is below the poverty level
Population data from US Census 2010 figures.
Poverty data (percent) from ACS 5-year estimate (2007-2011).
Number of persons calculated from percentage provided.
Regional rate calculated from sum of county/places figures

** Centers are defined as all cities and villages, and certain Census Defined Places (CDPs)
See attached List of Centers

Source: US Bureau of the Census, 2010 and American Community Survey 5-yr. estimate (2007 - 2011)

Indicator: Proportion of Residents Living in Existing Population Centers

County	Population		Households		Population in Centers*	
Genesee	60,079	4.9%	23,728	4.9%	25,753	42.9%
Livingston	65,393	5.4%	24,409	5.1%	29,420	45.0%
Monroe	744,344	61.2%	300,422	62.2%	260,730	35.0%
Ontario	107,931	8.9%	43,019	8.9%	36,939	34.2%
Orleans	42,883	3.5%	16,119	3.3%	14,513	33.8%
Seneca	35,251	2.9%	13,393	2.8%	14,277	40.5%
Wayne	93,772	7.7%	36,585	7.6%	31,142	33.2%
Wyoming	42,155	3.5%	15,501	3.2%	15,750	37.4%
Yates	25,348	2.1%	9,517	2.0%	7,887	31.1%
REGION	**1,217,156**	**100.0%**	**482,693**	**100.0%**	**436,411**	**35.9%**

*Centers are defined as all cities and villages, and certain Census Defined Places (CDPs)
See attached list of Centers.

Source: US Bureau of the Census, 2010

List of Centers*		
GEOID	**NAME**	**POPULATION**
3601033	Albion village (part), Albion town, Orleans County, New York	5,564
3601154	Alexander village, Alexander town, Genesee County, New York	620
3602407	Arcade village, Arcade town, Wyoming County, New York	2,179
3603001	Attica village (part), Attica town, Wyoming County, New York	2,508
3603353	Avon village, Avon town, Livingston County, New York	3,359
3604715	Batavia city, Batavia city, Genesee County, New York	15,586
3606046	Bergen village, Bergen town, Genesee County, New York	1,089
3606904	Bliss CDP, Eagle town, Wyoming County, New York	695
3606945	Bloomfield village, East Bloomfield town, Ontario County, New York	1,255
3608466	Brockport village (part), Sweden town, Monroe County, New York	8,407
3611704	Caledonia village, Caledonia town, Livingston County, New York	2,266
3612144	Canandaigua city, Canandaigua city, Ontario County, New York	10,678
3612771	Castile village, Castile town, Wyoming County, New York	1,294
3615638	Churchville village, Riga town, Monroe County, New York	2,056
3616375	Clifton Springs village (part), Manchester town, Ontario County, New York	2,622
3616573	Clyde village, Galen town, Wayne County, New York	1,944
3618201	Corfu village (part), Pembroke town, Genesee County, New York	770
3619664	Dansville village (part), North Dansville town, Livingston County, New York	4,709
3620896	Dresden village, Torrey town, Yates County, New York	239
3621050	Dundee village, Starkey town, Yates County, New York	1,789
3622865	East Rochester village, East Rochester town, Monroe County, New York	6,572
3623745	Elba village, Elba town, Genesee County, New York	765
3625076	Fairport village, Perinton town, Monroe County, New York	5,395
3627969	Gainesville village, Gainesville town, Wyoming County, New York	265
3628618	Geneseo village, Geneseo town, Livingston County, New York	7,926
3628640	Geneva city (part), Geneva city, Ontario County, New York	13,326
3629520	Gorham CDP, Gorham town, Ontario County, NY	582
3631786	Hamlin CDP, Hamlin town, Monroe County, New York	5,421
3634847	Hilton village, Parma town, Monroe County, New York	5,838
3635155	Holley village, Murray town, Orleans County, New York	1,962
3635364	Honeoye Falls village, Mendon town, Monroe County, New York	2,650
3637528	Interlaken village, Covert town, Seneca County, New York	688
3641036	Lakeville CDP, Livonia town, Livingston County, NY	602
3642026	Le Roy village, Le Roy town, Genesee County, New York	4,392
3641872	Leicester village, Leicester town, Livingston County, New York	501
3642323	Lima village, Lima town, Livingston County, New York	2,217
3642950	Livonia village, Livonia town, Livingston County, New York	1,657
3643214	Lodi village, Lodi town, Seneca County, New York	475
3643918	Lyndonville village, Yates town, Orleans County, New York	855
3643962	Lyons village, Lyons town, Wayne County, New York	3,682
3644149	Macedon village, Macedon town, Wayne County, New York	1,603
3644853	Manchester village, Manchester town, Ontario County, New York	1,609
3645634	Marion CDP, Marion town, Wayne County, New York	1,895
3646415	Medina village (part), Ridgeway town, Orleans County, New York	6,132

GEOID	NAME	POPULATION
3648945	Mount Morris village, Mount Morris town, Livingston County, New York	3,600
3649429	Naples village, Naples town, Ontario County, New York	1,042
3649891	Newark village, Arcadia town, Wayne County, New York	9,185
3653462	North Rose CDP, Rose town, Wayne County, New York	463
3654078	Nunda village, Nunda town, Livingston County, New York	1,536
3654155	Oakfield village, Oakfield town, Genesee County, New York	2,048
3655816	Ovid village (part), Ovid town, Seneca County, New York	477
3656187	Palmyra village, Palmyra town, Wayne County, New York	3,515
3656781	Pavilion CDP, Pavilion town, Genesee County, New York	483
3657177	Penn Yan village (part), Benton town, Yates County, New York	5,411
3657243	Perry village (part), Perry town, Wyoming County, New York	3,706
3657518	Phelps village, Phelps town, Ontario County, New York	1,932
3658354	Pittsford village, Pittsford town, Monroe County, New York	1,407
3659993	Pultneyville CDP, Williamson town, Wayne County, New York	765
3660829	Red Creek village, Wolcott town, Wayne County, New York	644
3663000	Rochester city, Rochester city, Monroe County, New York	211,977
3663429	Romulus CDP (part), Romulus town, Seneca County, New York	590
3664199	Rushville village (part), Potter town, Yates County, New York	448
3665332	Savannah CDP, Savannah town, Wayne County, New York	584
3665959	Scottsville village, Wheatland town, Monroe County, New York	2,073
3666322	Seneca Falls village, Seneca Falls town, Seneca County, New York	6,720
3667257	Shortsville village, Manchester town, Ontario County, New York	1,265
3667466	Silver Springs village, Gainesville town, Wyoming County, New York	727
3668242	Sodus Point village, Sodus town, Wayne County, New York	1,064
3668209	Sodus village, Sodus town, Wayne County, New York	2,047
3670189	Spencerport village, Ogden town, Monroe County, New York	3,568
3670477	Springwater Hamlet CDP, Springwater town, Livingston County, NY	410
3677376	Victor village, Victor town, Ontario County, New York	2,628
3678333	Warsaw village, Warsaw town, Wyoming County, New York	4,002
3678553	Waterloo village (part), Waterloo town, Seneca County, New York	5,327
3678960	Webster village, Webster town, Monroe County, New York	5,366
3682029	Williamson CDP, Williamson town, Wayne County, New York	2,379
3682678	Wolcott village (part), Wolcott town, Wayne County, New York	1,372
3683371	Wyoming village, Middlebury town, Wyoming County, New York	374
3684035	York Hamlet CDP, York town, Livingston County, NY	637
	Total	**436,411**

NOTE: Centers were defined as all cities and villages, and certain Census Defined Places (CDPs)
Included CDPs have a well defined geographic layout, a mix of land uses (commercial and civic mixed with residential), and distinct edges.

Materials/Waste Management Baseline

MATERIALS AND WASTE MANAGEMENT
Recommended INDICATORS

NYSERDA Indicators	Description	Calculation	Data Required/Source	Baseline Value (2010)	General Notes
Total regional solid waste generated per year	This indicator provides an overall view of the region's contribution to waste, including municipal solid waste (MSW), industrial, construction and demolition, and bio solid waste. It is listed as a NYSERDA indicator because it is directly related to 4A Common Indicator.	MSW + Industrial Non-Hazardous + C&D + Bio Solids per municipality in region per year [solid waste generated per capita = total regional solid waste generated per year / regional population] [Note: Important to eventually include waste coming into the region]	Total MSW, industrial non-hazardous solid waste, C&D, bio solids, and tires generated and imported per year; Population of region. Sources: County and regional solid waste management authorities (planning units); NYS DEC	**Total Estimated Solid Waste Generated Within Region:** ~8,455,238 tons. **Broken down into categories (tons):** MSW 5,392,542 (Paper 1,758,332, Metal 371,509, Plastics 757,576, Glass 236,170, Organics 1,222,906, Textiles 279,306, Wood 188,181, Miscellaneous 578,562), Industrial Non-Hazardous Wastes 217,688, C&D Debris 2,809,957, Bio solids 22,214, Tires 13,378	The baseline values here have been calculated using an "industry-standard" approach (see associated supporting documentation). This is a critical data need that will have to be further developed to include some non-hazardous industrial/commercial waste that may be unique to the region. Eventually there will be a need to discern how much waste entering the region's disposal facilities (i.e., landfills) is coming from outside the region. An intensive effort with the support of the State of New York will need to ensue to secure information from private landfills regarding an accurate accounting of incoming waste from outside the region. Last, there are other wastes for which baseline values might have to be developed depending on whether they become target items for planning purposes. These include but are not limited to: Carcasses, Manure and other Agricultural Waste; Regulated Medical Waste; and Industrial Hazardous Waste. A thorough waste characterization study diving into subcategories of commodities will be essential for future planning purposes. In addition, when baseline data is developed as noted above for materials coming into regional landfills from outside the Finger Lakes Region, that data set will need to be broken down by category similar to those noted in the baseline value description here. This indicator provides the ability to look at each component of the waste/discard stream and develop
Total regional solid waste diverted (not landfilled, incinerated, or exported) per year	This indicator provides a view to the effectiveness of reduction, recycling and sustainable discard management initiatives. It is listed as a NYSERDA indicator because it is directly related to 4B Common Indicator.	Total regional solid waste diverted (not landfilled, incinerated, or exported) per year / population of region [important to calculate a diversion per capita]	Total regional solid waste generated and imported per year; Total regional solid waste that is diverted per year (including diverted out of the region); Population of region. Sources: County and regional solid waste management authorities (planning units); NYS DEC.	**MSW Materials Recycled in Region (2008):** 197,930 tons	It is important to note two things: 1) the baseline value noted is the only available baseline information about materials diverted (in this case, MSW through recycling data captured in the region) and as such, baseline data is needed for materials reduced, reused, recycled and/or composted for other materials in addition to MSW (such as bio solids, tires, etc.), and 2) as noted earlier, baseline data for MSW is needed for amounts reduced, reused, and composted. There is a need to capture materials reduced through measures such as policy initiatives (source reduction, product stewardship, etc.), materials reused in unique manners (such as through a shadow economy), and items recycled and reused--all based on the agreed upon baseline waste generation number. It is recommended that 2013 be the base year to collect data on reduction, reuse, composting and recycling, using the 2008 baseline number (the best available) as a starting point.
Place-Sourced Indicators	**Description**	**Calculation**	**Data Required/Source**	**Baseline Value (2010)**	**General Notes**

Landfill Breakdown

	Seneca Meadows	Mill Seat	Ontario County Sanitary LF
Ash from NY disposed	1604	89.11	
Ash imported disposed	21651		
Ash used as ADC		1338	78784
Aggregate - Concrete			1,244
Asbestos (Friable & Non-Friable)	2,595	4,317	18,415
Construction & Demolition Debris	277,298	63,827	53,120
Contaminated Soil	219,393	29,743	188,845
Foundry Sand			6,786
Grit & Screenings	1,579		
Glass			5,088
Industrial	12,241	22,371	40,683
MSW (Residential/Institutional & Commercial)	1,618,021	407,987	742,837
MSW/Wood Ash		1,338	78,784
Other - Broken Shingles			160
Other- Demo Cover		3,655	
Other - Industrial Ash	77,920		
Other - Filter Cake			19
Other - Sand Blasting Sand			47
Other - Special Waste			
Other - Z9500	3,082		
Paper Mill Sludge			2,200
Petroleum Contaminated Soil	15,451	6	
Processed C&D	118,794	31,233	16,467
Sewage Treatment Plant Sludge		28,049	56,335
Shredder Fluff	34,119	27,554	6,949
Sludge- Industrial	65,279		
tire waste	10,808		
Wood/Wood Chips		5,656	
Total	2479834.4	627163.12	1296762.49

MSW	3170021.34

High Acres	US Gypsum	Victor Insulators	Lockwood Ash Disp Site	**Total**
			87197.94	**88891.05**
				21651
				80122
				1244.48
8,539				**33865.45**
38,346				**432591.12**
50,815				**488794.8**
				6786.23
				1579
				5087.91
85,464	1603	546.36	83.58	**162991.64**
321,054				**3089898.82**
				80122.52
				160.04
				3655.28
				77920
				18.75
				46.86
3,596				**3595.98**
				3082
				2199.88
8,730				**24186.83**
2,546				**169039.45**
52,003			130.88	**136517.81**
				68622.29
				65279
				10808
				5656.15
571092.57	1603	546.36	87412.4	**5064414.34**

2,016,770
526,802
911,389
514,136

3,969,097
4,974,853

Municipal Solid Waste Estimated Breakdown

Material	**Tons Generated (estimate)**	**% of Total (estimated)**
Newspaper	128811.2811	4.06%
Corrugated Cardboard	317021.7881	10.00%
Other Recyclable Paper		
Paperboard	72737.40765	2.29%
Office Paper	90578.28776	2.86%
Junk Mail	66956.55674	2.11%
Other Commercial Printing	70900.06329	2.24%
Magazines	31815.60218	1.00%
Books	14636.62253	0.46%
Bags	12352.30515	0.39%
Phone Books	8688.394489	0.27%
Poly-Coated	7443.210106	0.23%
Other Recyclable Paper (Total)	376108.4499	11.86%
Other Compostable Paper	211757.4255	6.68%
Total Paper	**1033698.945**	**32.61%**
Ferrous/Aluminum Containers		
Ferrous Containers	35205.623	1.11%
Aluminum Containers	15070.91545	0.48%
Ferrous/Aluminum Containers (Total)	50276.53845	1.59%
Other Ferrous Metals	137551.03	4.34%
Other Non-Ferrous Metals		
Other aluminum	7802.690526	0.25%
Automotive batteries	12215.36023	0.39%
Other non-aluminum	10594.84532	0.33%
Other Non-Ferrous Metals (Total)	30612.89608	0.97%
Total Metals	**218440.4645**	**6.89%**
PET Containers	31969.66521	1.01%
HDPE Containers	26870.36889	0.85%
Other Plastic (3-7) Containers	6127.017246	0.19%
Film Plastic	182210.9246	5.75%
Other Plastic		
Durables	100922.0674	3.18%
Non-Durables	56247.59065	1.77%
Packaging	40882.49721	1.29%
Other Plastic (Total)	198052.1553	6.25%
Total Plastics	**445230.1312**	**14.05%**
Glass Containers	126317.1083	3.98%
Other Glass	12451.20982	0.39%
Total Glass	**138768.3182**	**4.38%**
Food Scraps	559664.7316	17.65%

Yard Trimmings	159222.5639	5.02%
Total Organics	**718887.2954**	**22.68%**
Clothing Footwear, Towels, Sheets	119900.3511	3.78%
Carpet	44298.51221	1.40%
Total Textiles	**164198.8634**	**5.18%**
Total Wood	**110509.4799**	**3.49%**
C&D Materials	141544.6229	4.47%
Other Durables	53236.70438	1.68%
Diapers	53563.85058	1.69%
Electronics	44704.27494	1.41%
Tires	31750.29974	1.00%
HHW	9354.09897	0.30%
Fines	6133.991293	0.19%
Total Miscellaneous	**340287.8428**	**10.73%**
Total	**3170021.34**	**100.00%**
Population (Actual & Projected)	1217156	
MSW Generated (tons)	3170021.34	
MSW Diverted (tons)		
MSW Disposed (tons)		
Per Capita MSW Generated (lbs)	5208.899007	
Per Capita MSW Diverted (lbs)		
Per Capita/year MSW Dispised (lbs)		
Per Capita/day MSW Dispised (lbs)		

Recyclables Received

	Attica Transfer Station	Bennington Transfer Station	Disposal and Recycling Service;	Arnold Scrap Processors Inc.	Java Transfer Station	JC Fibers Inc	Monroe County Recycling Center
Aggregate & Concrete							
Aluminum Foil/Trays							
Brush, branches, tree	8						1192
Bulk Metal	300						159
Commingled Containers		37	124		20	4500	12501
Commingled Paper		30	38		20	82	60732
Commingled Paper & Containers		37	20				
Container Glass	15					10	2725
Corrugated Cardboard	12					1267	19878
Electronics		2.56					
Enameled Appliance/White Goods							
HDPE	5.00						1300
Industrial Scrap Metal				1680			12
Industrial Scrap Plastic							1308
Junk mail						283	
Magazines						420	
Newspaper	105	30				6240	20485
Office Paper							16766
Other rigid plastic						890	56
Paperboard/Boxboard						40	2596
PET							1047
Plastic film & bags							9.25
Single Stream			336			120	
Textiles							
Tin & Aluminum Containers	13						1669
Wood (pallets & crates)							387
Yard waste	80						1656
Total	538	136.56	518	1680	40	13852	144478.3

Rochester Recycling; LLC	ALPCO Recycling; Inc.	Monroe County Transfer	Bergen T.S.	C.L.E.A.N. Recycling Center and T.S.	Center Point Transfer Station; Inc.	Clarkson (T)Rural Transfer	Darien T.S.	Geneseo T.S.
						366		
		257			106	38		27.04
			10	57		29		82
	13619			46		67	39	
							20	
	11050	413	5.48				21	
	100					17	4.5	1.06
			14					
	207							
							24	
654		16						
			67					40
	549					67		
	479							
	468						26	
	193							
				2				
			3.26		0.32		6.4	
654	26665	686	99.74	105	106.32	584	140.9	150.1

Greece (T) Transfer	Hamlin (T) Transfer	LeRoy T.S.	Metalico Transfer; Inc	Sweden (T) Rural Transfer	West Sparta T.S.	**Total**	
			394			394	
		45				45	
1095	300	300				3261	
11	40		521	24		1483.04	
		29		25		17414	
		38			26	74737	
		29				86	
	3	26			75	2874	
	5	26				32677.48	
	6	1				132.12	
						14	
						1512	
						1716	
						1978	
						283	
						527	
						27476	
						17245	
						1440	
		26				2662	
		29				1269	
						9.25	
						456	
						2	
						1691.98	
						387	
4430		1				6167	
5536	354	550	915	49	101	197938.9	
							197938.9

Finger Lakes Sustainability Plan: Materials and Waste Management – Baseline Data Calculations Supporting Documentation

NYSERDA Indicators:

1. *Total Regional and Per Capita Solid Waste Generated Per Year*

Total Estimated Solid Waste Generated Within Region:

8,455,238 tons

This number is a total of all the numbers listed below not including the number for *Total Solid Waste Landfilled in the Finger Lakes Region* (as explained below). It is the higher-end of the estimate using the bigger of the two *C&D Waste* numbers below.

Projected 2010 Regional Municipal Solid Waste Generated:

5,392,001 tons

2010 regional population of 1,217,156 multiplied by the national average MSW generation rate of 4.43 pounds per person per day equaling 5,392,001 tons of total municipal solid waste generated in the region.

- Population data is per the US Census and is detailed for each of the nine counties in the attached Excel spreadsheet.
- MSW generation rate is sourced from the US EPA at <www.epa.gov/epawaste/nonhaz/municipal/index.htm> (attached), which is the recognized industry-standard source for per capita waste generation data.
- MSW does not include other components of the waste stream, as noted below.

Estimated 2008 Non-hazardous Industrial Waste Generated:

217,688 tons

- This is based on a 0.98 pounds per person per day estimated statewide average calculated from NYS DEC statewide 2008 total of 3.5 million tons from data closest to 2010 base year.
- This NYS DEC data is developed from information provided by "planning units" (county/municipal governments, solid waste authorities, solid waste disposal facilities, etc. from across the state, including the Finger Lakes Region, and is captured in the State's *Beyond Waste* solid waste management plan and associated appendices (all attached).
- Calculations were derived from data starting on page 115 of the aforementioned plan.

Estimated 2008 C&D Waste Generated:

1,088,442 to 2,809,957 tons

- This is based on a 4.9 to 12.65 pounds per person per day estimated statewide average calculated from NYS DEC statewide 2008 range from 17.5 to 45 million total tons from data closest to 2010 base year.
- This NYS DEC data is developed from information provided by "planning units" (county/municipal governments, solid waste authorities, solid waste disposal facilities, etc. from across the state, including the Finger Lakes Region, and is captured in the State's *Beyond Waste* solid waste management plan and associated appendices (all attached).
- Calculations were derived from data starting on page 106 of the aforementioned plan.

Estimated 2008 Biosolids (Sewage Sludge) Generated:

22,214 tons

- This is based on a 0.1 pounds per person per day estimated statewide average calculated from NYS DEC statewide 2008 total 353,000 total dry tons from data closest to 2010 base year.
- This NYS DEC data is developed from information provided by "planning units" (county/municipal governments, solid waste authorities, solid waste disposal facilities, etc. from across the state, including the Finger Lakes Region, and is captured in the State's *Beyond Waste* solid waste management plan and associated appendices (all attached).
- Calculations were derived from data starting on page 102 of the aforementioned plan.

Estimated 2008 Tires Generated:

13,378 tons

- This is based on a 0.06 pounds per person per day estimated statewide average calculated from NYS DEC statewide 2006 total of 200,000 tons from data closest to 2010 base year.
- This NYS DEC data is developed from information provided by "planning units" (county/municipal governments, solid waste authorities, solid waste disposal facilities, etc. from across the state, including the Finger Lakes Region, and is captured in the State's *Beyond Waste* solid waste management plan and associated appendices (all attached).
- Calculations were derived from data starting on page 105 of the aforementioned plan.

Total Solid Waste Received by Landfills in the Finger Lakes Region:

5,064,414.34 tons

- This NYS DEC data is developed from information provided by landfills in the Finger Lakes Region (see attached breakdown in Excel spreadsheet).
- This number includes waste landfilled that was both generated within the region, and imported into the region. More detailed analysis needs to take place to better quantify the source of landfilled material.

Place Sourced Indicators:

2. *Total Regional Solid Waste Diverted after Reduction (not Landfilled, Incinerated, or Exported) per Year / Population of Region*

- See calculation description for indicator one above.
- **MSW Materials Recycled in Region (2008):** 197,930 tons is derived from data provided by planning units in the Finger Lakes Region to the NYS DEC as captured in its *Beyond Waste* plan (attached), and detailed in the attached Excel spreadsheet.

Note: Please see attached data compilation on a county-by-county basis for the region. The same formulas and calculation protocol were used to complete this county-level data set.

Municipal Solid Waste

Municipal Solid Waste (MSW)—more commonly known as trash or garbage—consists of everyday items we use and then throw away, such as product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances, paint, and batteries. This comes from our homes, schools, hospitals, and businesses.

Each year EPA produces a report on MSW generation, recycling, and disposal.

In 2010, Americans generated about 250 million tons of trash and recycled and composted over 85 million tons of this material, equivalent to a 34.1 percent recycling rate . On average, we recycled and composted 1.51 pounds of our individual waste generation of 4.43 pounds per person per day (Figure 1 and Figure 2).

Related Links

- Municipal Solid Waste Publications
- Municipal Solid Waste in the United States: Facts and Figures
- Nonhazardous Waste Management Hierarchy
- Reduce, Reuse, Recycle
- Sustainable Materials Management

EPA encourages practices that reduce the amount of waste needing to be disposed of, such as waste prevention, recycling, and composting.

Source reduction, or waste prevention, is designing products to reduce the amount of waste that will later need to be thrown away and also to make the resulting waste less toxic.

Recycling is the recovery of useful materials, such as paper, glass, plastic, and metals, from the trash to use to make new products, reducing the amount of new raw materials needed.

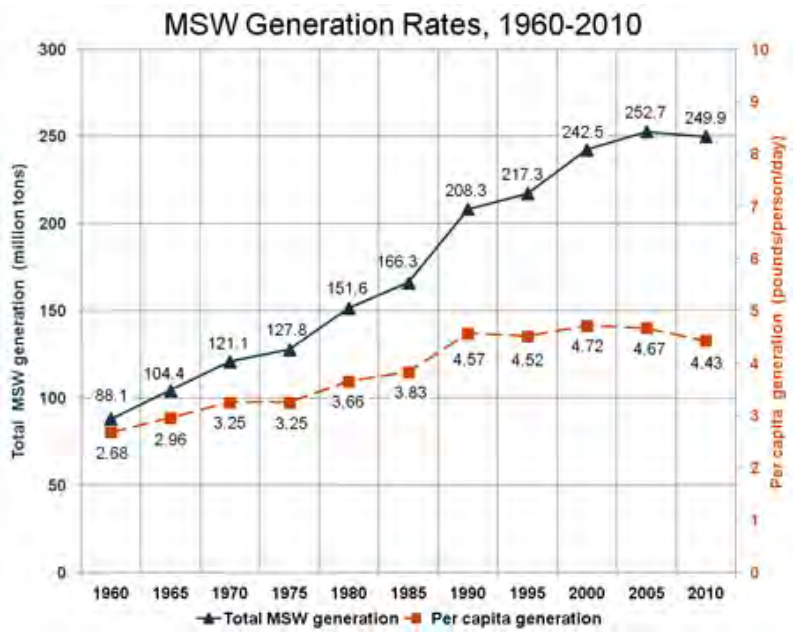


Figure 1. MSW Generation Rates, 1960-2010

+ View information in text format

+ View enlarged image

Composting involves collecting organic waste, such as food scraps and yard trimmings, and storing it under conditions designed to help it break down naturally. This resulting compost can then be used as a natural fertilizer.

In 2010,

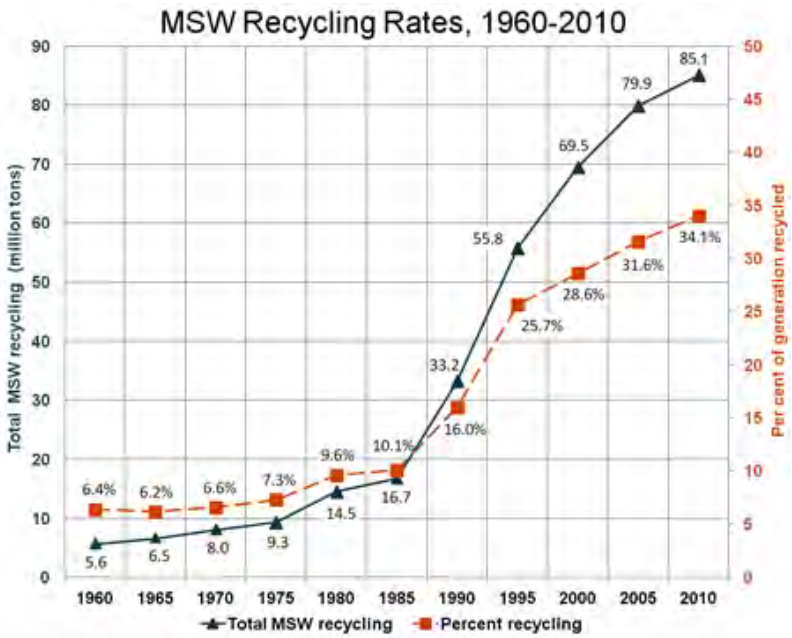


Figure 2. MSW Recycling Rates, 1960-2010

+ View information in text format

+ View enlarged image

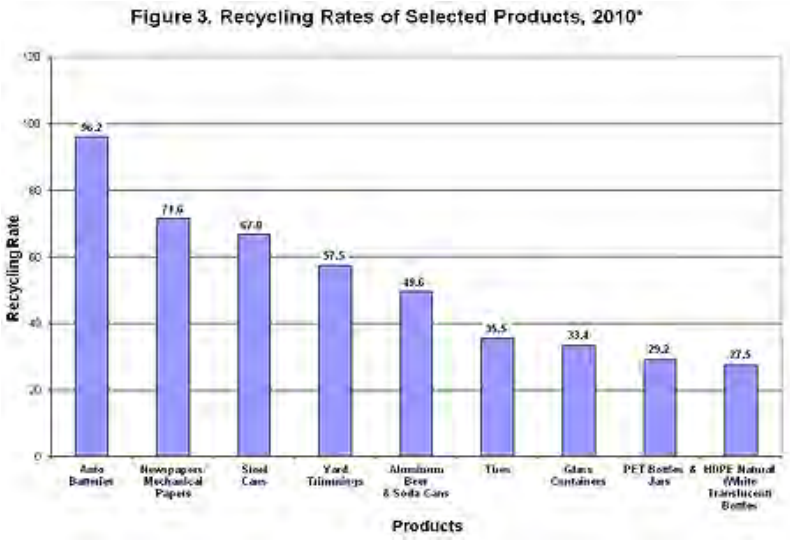


Figure 3. Recycling Rates of Selected Products, 2010*

* Does not include combustion (with energy recovery).

** Mechanical papers include directories, newspaper inserts, and some advertisement and direct mail printing.

+ View information in text format

+ View enlarged image

newspaper/mechanical papers recovery was about 72 percent (7 million tons), and about 58 percent of yard trimmings were recovered (Figure 3). Total MSW generation in 2010 was 250 million tons. Organic materials continue to be the largest component of MSW. Paper and paperboard account for 29 percent and yard trimmings and food scraps account for another 27 percent. Plastics comprise 12 percent; metals make up 9 percent; and rubber, leather, and textiles account for 8 percent. Wood follows at around 6 percent and glass at 5 percent. Other miscellaneous wastes make up approximately 3 percent of the MSW generated in 2010 (Figure 4).

This section describes the requirements for disposal and combustion of Municipal Solid Waste:

Landfills are engineered areas where waste is placed into the land. Landfills usually have liner systems and other safeguards to prevent polluting the groundwater.

Energy Recovery from Waste is the conversion of non-recyclable waste materials into useable heat, electricity, or fuel. Share

Combustion of MSW is done to reduce the amount of landfill space needed.

Transfer Stations are facilities where municipal solid waste is unloaded from collection vehicles and briefly held while it is reloaded onto larger, long-distance transport vehicles for shipment to landfills or other treatment or disposal facilities.

Wastes Home
Non-Hazardous Waste Home
Municipal Solid Waste Home
Landfills
Transfer Stations
Energy Recovery from Waste
Combustion
Backyard Burning
Information Resources
Laws & Regulations
Educational Materials

Resource Conservation

Recycling and composting prevented 85.1 million tons of material away from being disposed of 2010, up from 15 million tons in 1980. This prevented the release of approximately 186 million metric tons of carbon dioxide equivalent into the air in 2010—equivalent to taking 36 million cars off the road for a year. Learn more about how common wastes and materials, including food and yard wastes, paper, metals, and electronics, contribute to MSW generation and how they can be recycled.

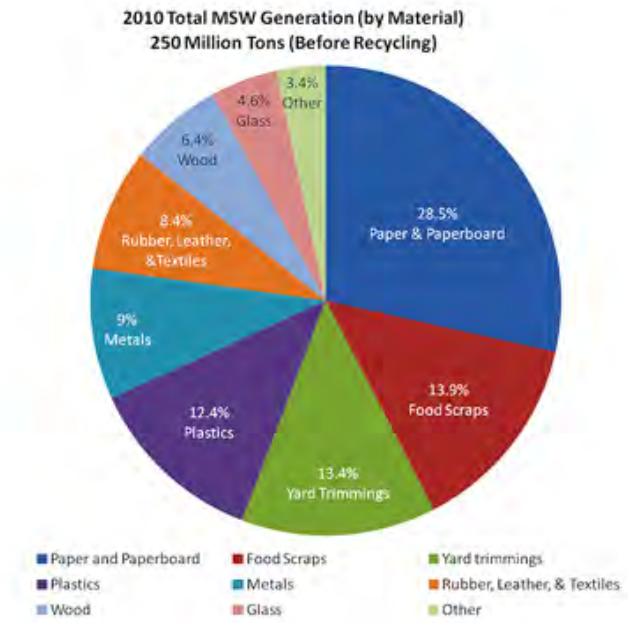


Figure 4. 2010 Total MSW Generation (by Material)

+ View information in text format

+ View enlarged image

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