

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.xlsx**".

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 be 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 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. It is 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 these 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 white cell is optional.

Reporting Region	Mohawk Valley
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REDC Emissions Summary CO2e Roll Up Numbers (MTCDE)	Population	MT CO2e per capita
Fulton County	55,531	#REF!
Herkimer County	64,519	#REF!
Montgomery County	50,219	#REF!
Oneida County	234,878	#REF!
Otsego County	62,259	#REF!
Schoharie County	32,749	#REF!
Sum Total of Counties	500,155	#REF!
REDC in Total		#REF!

Protocol Compliance Report		
Summary of Protocol Decisions for Required Tier II Source (Green Box Sources) "Rec" - recommended, "Alt" means acceptable alternative	Adherence	
	Yes	No
(Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based HDD and Housing Unit Size	X	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 and municipal utilities.
(Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size	X	Recommended method used
(Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size	X	Recommended method used
(Rec) Allocated EIA SEDS residential state consumption to counties based on Home Heating Fuel, HDD, and Housing Unit Size	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 and municipal utilities.
(Rec) - Utility Supplied Data, (Alt 1) - extrapolation from partial set, (Alt 2) EIA allocation based on Fuel Oil Recommended method.	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	Recommended method used: 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 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
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(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 shall 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. 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. 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
(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.	X	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
(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	Nothing to report
	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. 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	Recommended method used
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 Nyserd 2002 estimates of Diesel consumption by county directly.	X	Recommended method used
Passenger and Commuter (Rec) Use direct provider electricity consumption data allocated spatially to location of routes (Alt) None identified.	X	None 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	As stated, except recreational boating included in non-road data
	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
(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	Recommended method used
	X	Recommended method used
	X	Recommended method used
	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	Recommended method used
	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: Mohawk Valley

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	330,885	329,276	221	1,388			
	Natural Gas	646,304	645,671	256	378			
	Propane / LPG	94,014	93,644	94	277			
	Distillate Fuel Oil (#1, #2, Kerosene)	368,268	367,032	313	923			
	Wood	10,589	-	3,605	6,984			
	Commercial Energy Consumption							
	Electricity / Steam	177,504	176,641	119	745			
	Natural Gas	429,023	428,602	170	251			
	Propane / LPG	29,746	29,629	30	88			
	Distillate Fuel Oil (#1, #2, Kerosene)	293,888	292,902	249	737			
	Residual Fuel Oil (#4 and #6)	-						
	Coal	421	418	1	2			
	Wood	2,902	-	988	1,914			
	Industrial Energy Consumption							
	Electricity / Steam	230,780	229,658	154	968			
	Natural Gas	96,170	96,075	38	56			
	Propane / LPG	77	77	0	0			
	Distillate Fuel Oil (#1, #2, Kerosene)	882	879	1	2			
	Residual Fuel Oil (#4 and #6)	1,465	1,461	1	4			
	Coal	-	-	-	-			
	Wood	262		89	173			
	Energy Generation and Supply							
	Electricity T/D Losses	43,020	42,810	29	180			
	Natural Gas T/D Losses	#REF!		#REF!				
	Use of SF6 in the Utility Industry	9,895						9,895
	Industrial Processes							
	Cement Production							
	Iron and Steel Production							
	Ferroalloy Production							
	Aluminum Production							
Paper and Pulp								
Limestone Use								
Soda Ash Use								
Semi-Conductor Manufacturing								
Chemical Manufacturing								
Product Use (ODS Substitutes)								
All Refrigerants- except utility SF6	114,513						114,513	
Transportation Energy	On-road ALL (Total reflects subtraction of ethanol)							
	Motor Gasoline (E-10)	1,936,345	1,929,503	5,111	1,731			
	Diesel	408,014	406,704	963	347			
	Ethanol							
	Biodiesel							
	Rail							
	Diesel	86,902	86,610	218	74			
	Coal	-	-	-	-			
	Marine							
	Gasoline							
	Distillate	3	3	0	0			
	Residual Fuel Oil	-	-	-	-			
	Off-road Mobile							
All Fuels (Diesel and Gasoline)	320,037	318,931	826	280				
Waste Management	Solid Waste Management							
	FOD from Waste Generation	85,764	-	85,764	-			
	MSW incineration (non grid connected)							
	Sewage Treatment							
Central WWTPs and Septic Systems Total reflects round	50,000		30,000	10,000				
Agriculture	Livestock							
	Enteric Fementation	215,881		215,881				
	Manure management	56,250		46,590	9,659			
	Crop Production and Soil Management							
	Use of Fertilizer	21,599			21,599			
Crop Residue Incineration								
Grand Totals	#REF!	5,476,527	#REF!	58,758	-	114,513	9,895	

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: QAQC

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	330,885	329,276	221	1,388			
	Natural Gas	646,304	645,671	256	378			
	Propane / LPG	94,014	93,644	94	277			
	Distillate Fuel Oil (#1, #2, Kerosene)	368,268	367,032	313	923			
	Wood	10,589	-	3,605	6,984			
	Commercial Energy Consumption							
	Electricity / Steam	177,504	176,641	119	745			
	Natural Gas	429,023	428,602	170	251			
	Propane / LPG	29,746	29,629	30	88			
	Distillate Fuel Oil (#1, #2, Kerosene)	293,888	292,902	249	737			
	Residual Fuel Oil (#4 and #6)	-	-	-	-			
	Coal	421	418	1	2			
	Wood	2,902	-	988	1,914			
	Industrial Energy Consumption							
	Electricity / Steam	230,780	229,658	154	968			
	Natural Gas	96,170	96,075	38	56			
	Propane / LPG	77	77	0	0			
	Distillate Fuel Oil (#1, #2, Kerosene)	882	879	1	2			
	Residual Fuel Oil (#4 and #6)	1,465	1,461	1	4			
	Coal	-	-	-	-			
	Wood	262	-	89	173			
	Energy Generation and Supply							
	Electricity T/D Losses	43,020	42,810	29	180			
	Natural Gas T/D Losses	#REF!		#REF!				
	Use of SF6 in the Utility Industry	9,895						9,895
	Industrial Processes							
	Cement Production							
	Iron and Steel Production							
	Ferrous Alloy Production							
	Aluminum Production							
	Paper and Pulp							
Limestone Use								
Soda Ash Use								
Semi-Conductor Manufacturing								
Chemical Manufacturing								
Product Use (ODS Substitutes)								
All Refrigerants- except utility SF6	114,513						114,513	
Transportation Energy								
On-road ALL (Total reflects subtraction of ethanol)								
Motor Gasoline (E-10)	1,936,345	1,929,503	5,111	1,731				
Diesel	408,014	406,704	963	347				
Ethanol								
Biodiesel								
Rail								
Diesel	86,902	86,610	218	74				
Coal								
Marine								
Gasoline								
Distillate	3	3	0	0				
Residual Fuel Oil								
Off-road Mobile								
All Fuels (Diesel and Gasoline)	320,037	318,931	826	280				
Waste Management								
Solid Waste Management								
FOD from Waste Generation	85,764		85,764					
MSW incineration (non grid connected)								
Sewage Treatment								
Central WWTPs and Septic Systems Total reflects round	50,000		30,000	10,000				
Agriculture								
Livestock								
Enteric Fermentation	215,881		215,881					
Manure management	56,250		46,590	9,659				
Crop Production and Soil Management								
Use of Fertilizer	21,599			21,599				
Crop Residue Incineration								
Grand Totals	#REF!	5,476,527	#REF!	58,758	-	114,513	9,895	



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 **Fulton 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	36,889	36,709	25	155			
	Natural Gas	66,441	66,376	26	39			
	Propane / LPG	10,427	10,386	10	31			
	Distillate Fuel Oil (#1, #2, Kerosene)	44,973	44,822	38	113			
	Wood	1,395	-	475	920			
	Commercial Energy Consumption							
	Electricity / Steam	13,864	13,796	9	58			
	Natural Gas	34,816	34,781	14	20			
	Propane / LPG	2,648	2,638	3	8			
	Distillate Fuel Oil (#1, #2, Kerosene)	28,058	27,964	24	70			
	Residual Fuel Oil (#4 and #6)	-						
	Coal	18	18	0	0			
	Wood	308	-	105	203			
	Industrial Energy Consumption							
	Electricity / Steam	22,233	22,125	15	93			
	Natural Gas	854	853	0	0			
	Propane / LPG	-	-	-	-			
	Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-			
	Residual Fuel Oil (#4 and #6)	-	-	-	-			
	Coal	-	-	-	-			
	Wood	-	-	-	-			
	Energy Generation and Supply							
	Electricity T/D Losses	4,248	4,227	3	18			
	Natural Gas T/D Losses	#REF!		#REF!				
	Use of SF6 in the Utility Industry	977						977
	Industrial Processes							
	Cement Production							
	Iron and Steel Production							
	Ferrous Alloy Production							
	Aluminum Production							
	Paper and Pulp							
Limestone Use								
Soda Ash Use								
Semi-Conductor Manufacturing								
Chemical Manufacturing								
Product Use (ODS Substitutes)								
All Refrigerants- except utility SF6	12,714						12,714	
Transportation Energy								
On-road ALL (Total reflects subtraction of ethanol)								
Motor Gasoline (E-10)	151,209	150,675	399	135				
Diesel	28,490	28,395	71	24				
Ethanol								
Biodiesel								
Rail								
Diesel	-	-	-	-				
Coal	-	-	-	-				
Marine								
Gasoline								
Distillate	-	-	-	-				
Residual Fuel Oil	-	-	-	-				
Off-road Mobile								
All Fuels (Diesel and Gasoline)	33,069	32,953	86	29				
Waste Management								
Solid Waste Management								
FOD from Waste Generation	6,855	-	6,855	-				
MSW incineration (non grid connected)								
Sewage Treatment								
Central WWTPs and Septic Systems Total reflects round	5,551		3,330	1,110				
Agriculture								
Livestock								
Enteric Fermentation	9,601		9,601					
Manure management	1,756		1,459	296				
Crop Production and Soil Management								
Use of Fertilizer	960			960				
Crop Residue Incineration								
Grand Totals	#REF!	476,720	#REF!	4,284	-	12,714	977	

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: Herkimer 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	43,131	42,921	29	181			
	Natural Gas	87,458	87,372	35	51			
	Propane / LPG	11,610	11,564	12	34			
	Distillate Fuel Oil (#1, #2, Kerosene)	48,784	48,620	41	122			
	Wood	1,857	-	632	1,225			
	Commercial Energy Consumption							
	Electricity / Steam	17,603	17,518	12	74			
	Natural Gas	38,390	38,352	15	22			
	Propane / LPG	2,470	2,460	2	7			
	Distillate Fuel Oil (#1, #2, Kerosene)	25,495	25,410	22	64			
	Residual Fuel Oil (#4 and #6)	-						
	Coal	55	55	0	0			
	Wood	343	-	117	226			
	Industrial Energy Consumption							
	Electricity / Steam	20,755	20,654	14	87			
	Natural Gas	37,080	37,044	15	22			
	Propane / LPG	-	-	-	-			
	Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-			
	Residual Fuel Oil (#4 and #6)	-	-	-	-			
	Coal	-	-	-	-			
	Wood	-	-	-	-			
	Energy Generation and Supply							
	Electricity T/D Losses	4,743	4,720	3	20			
	Natural Gas T/D Losses	#REF!		#REF!				
	Use of SF6 in the Utility Industry	1,091						1,091
	Industrial Processes							
	Cement Production							
	Iron and Steel Production							
	Ferrous Alloy Production							
	Aluminum Production							
Paper and Pulp								
Limestone Use								
Soda Ash Use								
Semi-Conductor Manufacturing								
Chemical Manufacturing								
Product Use (ODS Substitutes)								
All Refrigerants- except utility SF6	14,772						14,772	
Transportation Energy								
On-road ALL (Total reflects subtraction of ethanol)								
Motor Gasoline (E-10)	264,726	263,791	699	237				
Diesel	55,898	55,710	140	47				
Ethanol								
Biodiesel								
Rail								
Diesel	19,118	19,054	48	16				
Coal	-	-	-	-				
Marine								
Gasoline								
Distillate	1	1	0	0				
Residual Fuel Oil	-	-	-	-				
Off-road Mobile								
All Fuels (Diesel and Gasoline)	55,517	55,325	144	49				
Waste Management								
Solid Waste Management								
FOD from Waste Generation	11,892	-	11,892	-				
MSW incineration (non grid connected)								
Sewage Treatment								
Central WWTPs and Septic Systems Total reflects round	6,706		4,024	1,341				
Agriculture								
Livestock								
Enteric Fermentation	60,782		60,782					
Manure management	12,219		10,112	2,108				
Crop Production and Soil Management								
Use of Fertilizer	3,919			3,919				
Crop Residue Incineration								
Grand Totals	#REF!	730,571	#REF!	9,853	-	14,772	1,091	

REDC Emissions By Source and Sector
Year: 2010

REDC / County Name **Montgomery 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					Biogenic	Rolled Up?	Related GHG Metrics / Activity Data		
Scope 1	Scope 2	Scope 3	Metric	Unit			Value		
Built Environment		Residential Energy Consumption							
MV Electricity Consumption	Electricity / Steam		31,017		Yes	Consumption	MMBTU	466,296	
MV Direct Residential Fuel Consumption	Natural Gas	62,404			Yes	Consumption	MMBTU	1,175,829	
MV Direct Residential Fuel Consumption	Propane / LPG	5,944			Yes	Consumption	MMBTU	94,000	
MV Direct Residential Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	35,228			Yes	Consumption	MMBTU	474,709	
MV Direct Residential Fuel Consumption	Wood	879		41778.0253	Yes	Consumption	MMBTU	445,395	
		Commercial Energy Consumption							
MV Electricity Consumption	Electricity / Steam		14,002		Yes	Consumption	MMBTU	210,496	
MV Commercial Direct Fuel Consumption	Natural Gas	38,499			Yes	Consumption	MMBTU	725,404	
MV Commercial Direct Fuel Consumption	Propane / LPG	1,777			Yes	Consumption	MMBTU	28,108	
MV Commercial Direct Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	25,875			Yes	Consumption	MMBTU	348,680	
MV Commercial Direct Fuel Consumption	Residual Fuel Oil (#4 and #6)	-			Yes	Consumption	MMBTU	-	
MV Commercial Direct Fuel Consumption	Coal	67			Yes	Consumption	MMBTU	652	
MV Commercial Direct Fuel Consumption	Wood	228		10853.9373	Yes	Consumption	MMBTU	115,714	
		Industrial Energy Consumption							
MV Electricity Consumption	Electricity / Steam		35,822		Yes	Consumption	MMBTU	538,530	
MV Industrial Title V Consumption	Natural Gas	28,042			Yes	Consumption	MMBTU	528,384	
MV Industrial Title V Consumption	Propane / LPG	-			Yes	Consumption	MMBTU	-	
MV Industrial Title V Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	-			Yes	Consumption	MMBTU	-	
MV Industrial Title V Consumption	Residual Fuel Oil (#4 and #6)	-			Yes	Consumption	MMBTU	-	
MV Industrial Title V Consumption	Coal	-			Yes	Consumption	MMBTU	-	
MV Industrial Title V Consumption	Wood	-		0	Yes	Consumption	MMBTU	-	
		Energy Generation and Supply							
MV Elec Generation GHG Analysis	Coal	-			No	Consumption	MMBTU	-	
MV Elec Generation GHG Analysis	Natural Gas	-			No	Consumption	MMBTU	-	
MV Elec Generation GHG Analysis	Distillate Fuel Oil (#1, #2 and #4)	-			No	Consumption	MMBTU	-	
MV Elec Generation GHG Analysis	Residual Fuel Oil (#4 and #6)	-			No	Consumption	MMBTU	-	
MV Elec Generation GHG Analysis	Wood / Biomass	-		0	No	Consumption	MMBTU	-	
MV Elec Generation GHG Analysis	MSW	-		0	No	MSW Combusted	MMBTU	-	
MV Elec Generation GHG Analysis	Other	-							
MV Electricity Consumption	Electricity T/D Losses		4,705		Yes	Losses	MMBTU	27,138	
MV Elec Generation GHG Analysis and MV Direct Fuel Consumption	Natural Gas T/D Losses	#REF!			Yes	Losses	MMBTU		
MV Electricity Consumption	Use of SF6 in the Utility Industry	1,082			Yes	Consumption	MMBTU		
		Industrial Processes							
Not Reported	Cement Production				Yes				
Not Reported	Iron and Steel Production				Yes				
Not Reported	Ferrous 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				
MV Industrial Sources	Glass Production				Yes				
Not Reported	Chemical Manufacturing				Yes				
		Product Use (Ozone Depleting Substances)							
MV Industrial Sources	All Refrigerants- except SF6	11,498			Yes				
		Transportation Energy							
MV Emission Summary - Onroad	Motor Gasoline (E-10)	278,203		20,191	Yes	Consumption	MMBTU	4,242,655	
MV Emission Summary - Onroad	Diesel	69,804			Yes	Consumption	MMBTU	940,638	
Not Reported	Ethanol (E-85)				No	Consumption	MMBTU		
Not Reported	Biodiesel				No	Consumption	MMBTU		
Not Reported	Electricity Consumption				No	Consumption	MMBTU		
		Rail							
MV Emission Summary - Rail	Diesel	32,190			Yes	Consumption	MMBTU	433,773	
MV Emission Summary - Rail	Coal Consumption				Yes	Consumption	MMBTU		
		Marine							
MV Emission Summary -Com Marine	Gasoline				Yes	Consumption	MMBTU		
MV Emission Summary -Com Marine	Distillate Fuels	1			Yes	Consumption	MMBTU	9	
MV Emission Summary -Com Marine	Residual Fuels				Yes	Consumption	MMBTU		
		Air							
MV Emission Summary-Aircraft	All Fuels (Jet and Aviation Gasoline)	67			No	Consumption	MMBTU	932	
		Off-road Mobile							
MV Emission Summary-Nonroad	All Fuels (Diesel and Gasoline)	51,249			Yes	Consumption	MMBTU	710,639	
		Waste Management							
MV Waste	Landfill (Scope 1), allocated FOD (Scope 3) used in roll up			10,278	Yes - ONLY Scope 3	MSW+CD Generated	Tonnes	32,004	
Not Reported	MSW incineration (non grid connected)				Yes	MSW+CD Processed	Tonnes		
		Sewage Treatment							
MV Waste water	Central WWTPs and Septic Systems	6,772			Yes	MSW Sent for Incineration	Tonnes		
		MSW incinerated in Bounda							
MV Waste water					Yes	MSW incinerated in Bounda	Tonnes		
		Agriculture							
GHF_MV_Agriculture	Enteric Fermentation	62,857			Yes				
GHF_MV_Agriculture	Manure management	11,904			Yes				
		Crop Production and Soil Management							
GHF_MV_Agriculture	Use of Fertilizer	4,335			Yes				
Not Reported	Crop Residue Incineration				No				
		Land Use and Forestry							
GHG_MV_Forest	Urban Forest Annual Reserve	10,856			No				
GHG_MV_Forest	Forest Carbon Reserve (TOTAL)	12,382,900			No				
Grand Totals		Gross Totals	#REF!	85,546	10,278	72,823	#REF!		
		Total with Aircraft (as reported in WNY Sustainability Plan)	#REF!	85,546	10,278	72,823	#REF!		
		Net Totals							



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 **Montgomery 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	31,017	30,866	21	130			
	Natural Gas	62,404	62,342	25	36			
	Propane / LPG	5,944	5,920	6	17			
	Distillate Fuel Oil (#1, #2, Kerosene)	35,228	35,110	30	88			
	Wood	879	-	299	580			
	Commercial Energy Consumption							
	Electricity / Steam	14,002	13,934	9	59			
	Natural Gas	38,499	38,461	15	22			
	Propane / LPG	1,777	1,770	2	5			
	Distillate Fuel Oil (#1, #2, Kerosene)	25,875	25,788	22	65			
	Residual Fuel Oil (#4 and #6)	-	-	-	-			
	Coal	67	66	0	0			
	Wood	228	-	78	151			
	Industrial Energy Consumption							
	Electricity / Steam	35,822	35,648	24	150			
	Natural Gas	28,042	28,015	11	16			
	Propane / LPG	-	-	-	-			
	Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-			
	Residual Fuel Oil (#4 and #6)	-	-	-	-			
	Coal	-	-	-	-			
	Wood	-	-	-	-			
	Energy Generation and Supply							
	Electricity T/D Losses	4,705	4,682	3	20			
	Natural Gas T/D Losses	#REF!		#REF!				
	Use of SF6 in the Utility Industry	1,082						1,082
	Industrial Processes							
	Cement Production							
	Iron and Steel Production							
	Ferrous Production							
Aluminum Production								
Paper and Pulp								
Limestone Use								
Soda Ash Use								
Semi-Conductor Manufacturing								
Chemical Manufacturing								
Product Use (ODS Substitutes)								
All Refrigerants- except utility SF6	11,498						11,498	
Transportation Energy								
On-road ALL (Total reflects subtraction of ethanol)								
Motor Gasoline (E-10)	278,203	277,220	734	249				
Diesel	69,804	69,570	175	59				
Ethanol								
Biodiesel								
Rail								
Diesel	32,190	32,082	81	27				
Coal	-	-	-	-				
Marine								
Gasoline								
Distillate	1	1	0	0				
Residual Fuel Oil	-	-	-	-				
Off-road Mobile								
All Fuels (Diesel and Gasoline)	51,249	51,072	132	45				
Waste Management								
Solid Waste Management								
FOD from Waste Generation	10,278	-	10,278	-				
MSW incineration (non grid connected)								
Sewage Treatment								
Central WWTPs and Septic Systems Total reflects round	6,772		4,063	1,354				
Agriculture								
Livestock								
Enteric Fermentation	62,857		62,857					
Manure management	11,904		9,869	2,035				
Crop Production and Soil Management								
Use of Fertilizer	4,335			4,335				
Crop Residue Incineration								
Grand Totals	#REF!	712,548	#REF!	9,446	-	11,498	1,082	

REDC Emissions By Source and Sector
Year: 2010

REDC / County Name: **Oneida 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							
MV Electricity Consumption	Electricity / Steam		48,760			Yes	Consumption	MMBTU	733,033
MV Direct Residential Fuel Consumption	Natural Gas	391,795				Yes	Consumption	MMBTU	7,382,321
MV Direct Residential Fuel Consumption	Propane / LPG	27,409				Yes	Consumption	MMBTU	433,485
MV Direct Residential Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	111,432				Yes	Consumption	MMBTU	1,501,602
MV Direct Residential Fuel Consumption	Wood	2,086			99135.3344	Yes	Consumption	MMBTU	1,056,880
		Commercial Energy Consumption							
MV Electricity Consumption	Electricity / Steam		55,220			Yes	Consumption	MMBTU	830,142
MV Commercial Direct Fuel Consumption	Natural Gas	295,260				Yes	Consumption	MMBTU	5,563,382
MV Commercial Direct Fuel Consumption	Propane / LPG	10,012				Yes	Consumption	MMBTU	158,338
MV Commercial Direct Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	99,982				Yes	Consumption	MMBTU	1,347,297
MV Commercial Direct Fuel Consumption	Residual Fuel Oil (#4 and #6)	-				Yes	Consumption	MMBTU	-
MV Commercial Direct Fuel Consumption	Coal	103				Yes	Consumption	MMBTU	1,002
MV Commercial Direct Fuel Consumption	Wood	662			31461.369	Yes	Consumption	MMBTU	335,409
		Industrial Energy Consumption							
MV Electricity Consumption	Electricity / Steam		5,037			Yes	Consumption	MMBTU	75,718
MV Industrial Title V Consumption	Natural Gas	345				Yes	Consumption	MMBTU	6,508
MV Industrial Title V Consumption	Propane / LPG	77				Yes	Consumption	MMBTU	1,221
MV Industrial Title V Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	882				Yes	Consumption	MMBTU	11,889
MV Industrial Title V Consumption	Residual Fuel Oil (#4 and #6)	1,465				Yes	Consumption	MMBTU	19,448
MV Industrial Title V Consumption	Coal	-				Yes	Consumption	MMBTU	-
MV Industrial Title V Consumption	Wood	262			0	Yes	Consumption	MMBTU	132,859
Energy Generation and Supply		Energy Generation and Supply							
MV Elec Generation GHG Analysis	Coal	-				No	Consumption	MMBTU	-
MV Elec Generation GHG Analysis	Natural Gas	5,741				No	Consumption	MMBTU	108,173
MV Elec Generation GHG Analysis	Distillate Fuel Oil (#1, #2 and #4)	-				No	Consumption	MMBTU	-
MV Elec Generation GHG Analysis	Residual Fuel Oil (#4 and #6)	-				No	Consumption	MMBTU	-
MV Elec Generation GHG Analysis	Wood / Biomass	-			0	No	Consumption	MMBTU	-
MV Elec Generation GHG Analysis	MSW	-			0	No	MSW Combusted	MMBTU	-
MV Elec Generation GHG Analysis	Other	-							2,454,648
MV Electricity Consumption	Electricity T/D Losses		6,345			Yes	Losses	MMBTU	42,663
MV Elec Generation GHG Analysis and MV Direct Fuel Consumption	Natural Gas T/D Losses	#REF!				Yes	Losses	MMBTU	
MV Electricity Consumption	Use of SF6 in the Utility Industry	1,459				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			
MV Industrial Sources	Glass Production					Yes			
Not Reported	Chemical Manufacturing					Yes			
Product Use (Ozone Depleting Substances)		Product Use (Ozone Depleting Substances)							
MV Industrial Sources	All Refrigerants- except SF6	53,776				Yes			
Transportation Energy		On-road							
MV Emission Summary - Onroad	Motor Gasoline (E-10)	766,133			55,604	Yes	Consumption	MMBTU	11,683,691
MV Emission Summary - Onroad	Diesel	148,454				Yes	Consumption	MMBTU	2,001,279
Not Reported	Ethanol (E-85)					No	Consumption	MMBTU	
Not Reported	Biodiesel					No	Consumption	MMBTU	
Not Reported	Electricity Consumption					No	Consumption	MMBTU	
		Rail							
MV Emission Summary - Rail	Diesel	23,241				Yes	Consumption	MMBTU	313,181
MV Emission Summary - Rail	Coal Consumption					Yes	Consumption	MMBTU	
		Marine							
MV Emission Summary -Com Marine	Gasoline					Yes	Consumption	MMBTU	
MV Emission Summary -Com Marine	Distillate Fuels	1				Yes	Consumption	MMBTU	7
MV Emission Summary -Com Marine	Residual Fuels					Yes	Consumption	MMBTU	
		Air							
MV Emission Summary-Aircraft	All Fuels (Jet and Aviation Gasoline)	1,950				No	Consumption	MMBTU	27,327
		Off-road Mobile							
MV Emission Summary-Nonroad	All Fuels (Diesel and Gasoline)	115,635				Yes	Consumption	MMBTU	1,616,964
Waste Management		Solid Waste Management							
MV Waste	Landfill (Scope 1), allocated FOD (Scope 3) used in roll up	52,153		43,293	0	Yes - ONLY Scope 3	MSW+CD Generated	Tonnes	134,802
Not Reported	MSW incineration (non grid connected)					Yes	MSW+CD Processed	Tonnes	171,831
		Sewage Treatment							
MV Waste water	Central WWTPs and Septic Systems	27,737				Yes	MSW Sent for Incineration	Tonnes	
		MSW incinerated in Bounda							
		MSW incinerated in Bounda							
Agriculture		Livestock							
GHF_MV_Agriculture	Enteric Fermentation	531				Yes			
GHF_MV_Agriculture	Manure management	14,852				Yes			
		Crop Production and Soil Management							
GHF_MV_Agriculture	Use of Fertilizer	5,324				Yes			
Not Reported	Crop Residue Incineration					No			
Land Use and Forestry		Urban Forest Annual Reserve							
GHG_MV_Forest	Forest Carbon Reserve (TOTAL)	45,676				No			
GHG_MV_Forest		81,365,961				No			
Grand Totals		Gross Totals		#REF!	115,361	43,293	186,201	#REF!	
		Total with Aircraft (as reported in WNY Sustainability Plan)		#REF!	115,361	43,293	186,201	#REF!	
		Net Totals							



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 **Oneida 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	48,760	48,523	33	205			
	Natural Gas	391,795	391,411	155	229			
	Propane / LPG	27,409	27,301	27	81			
	Distillate Fuel Oil (#1, #2, Kerosene)	111,432	111,058	95	279			
	Wood	2,086	-	710	1,376			
	Commercial Energy Consumption							
	Electricity / Steam	55,220	54,951	37	232			
	Natural Gas	295,260	294,971	117	172			
	Propane / LPG	10,012	9,972	10	29			
	Distillate Fuel Oil (#1, #2, Kerosene)	99,982	99,646	85	251			
	Residual Fuel Oil (#4 and #6)	-						
	Coal	103	102	0	0			
	Wood	662	-	225	437			
	Industrial Energy Consumption							
	Electricity / Steam	5,037	5,012	3	21			
	Natural Gas	345	345	0	0			
	Propane / LPG	77	77	0	0			
	Distillate Fuel Oil (#1, #2, Kerosene)	882	879	1	2			
	Residual Fuel Oil (#4 and #6)	1,465	1,461	1	4			
	Coal	-	-	-	-			
	Wood	262		89	173			
	Energy Generation and Supply							
	Electricity T/D Losses	6,345	6,314	4	27			
	Natural Gas T/D Losses	#REF!		#REF!				
	Use of SF6 in the Utility Industry	1,459						1,459
	Industrial Processes							
	Cement Production							
	Iron and Steel Production							
	Ferrous Alloy Production							
	Aluminum Production							
Paper and Pulp								
Limestone Use								
Soda Ash Use								
Semi-Conductor Manufacturing								
Chemical Manufacturing								
Product Use (ODS Substitutes)								
All Refrigerants- except utility SF6	53,776						53,776	
Transportation Energy								
On-road ALL (Total reflects subtraction of ethanol)								
Motor Gasoline (E-10)	766,133	763,426	2,022	685				
Diesel	148,454	148,015	314	126				
Ethanol								
Biodiesel								
Rail								
Diesel	23,241	23,163	58	20				
Coal	-	-	-	-				
Marine								
Gasoline								
Distillate	1	1	0	0				
Residual Fuel Oil	-	-	-	-				
Off-road Mobile								
All Fuels (Diesel and Gasoline)	115,635	115,235	298	101				
Waste Management								
Solid Waste Management								
FOD from Waste Generation	43,293	-	43,293	-				
MSW incineration (non grid connected)								
Sewage Treatment								
Central WWTPs and Septic Systems Total reflects round	27,737		16,642	5,547				
Agriculture								
Livestock								
Enteric Fermentation	531		531					
Manure management	14,852		12,272	2,579				
Crop Production and Soil Management								
Use of Fertilizer	5,324			5,324				
Crop Residue Incineration								
Grand Totals	#REF!	2,101,863	#REF!	17,900	-	53,776	1,459	



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 **Otsego 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	146,168	145,457	98	613			
	Natural Gas	35,054	35,020	14	20			
	Propane / LPG	28,903	28,790	29	85			
	Distillate Fuel Oil (#1, #2, Kerosene)	82,461	82,184	70	207			
	Wood	2,911	-	991	1,920			
	Commercial Energy Consumption							
	Electricity / Steam	69,020	68,684	46	289			
	Natural Gas	18,384	18,366	7	11			
	Propane / LPG	7,347	7,318	7	22			
	Distillate Fuel Oil (#1, #2, Kerosene)	51,487	51,315	44	129			
	Residual Fuel Oil (#4 and #6)	-						
	Coal	65	64	0	0			
	Wood	643	-	219	424			
	Industrial Energy Consumption							
	Electricity / Steam	138,909	138,234	93	583			
	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	20,608	20,508	14	86			
	Natural Gas T/D Losses	#REF!		#REF!				
	Use of SF6 in the Utility Industry	4,740						4,740
	Industrial Processes							
	Cement Production							
	Iron and Steel Production							
	Ferrous Alloy Production							
Aluminum Production								
Paper and Pulp								
Limestone Use								
Soda Ash Use								
Semi-Conductor Manufacturing								
Chemical Manufacturing								
Product Use (ODS Substitutes)								
All Refrigerants- except utility SF6	14,254						14,254	
Transportation Energy								
On-road ALL (Total reflects subtraction of ethanol)								
Motor Gasoline (E-10)	248,427	247,549	656	222				
Diesel	49,513	49,347	124	42				
Ethanol								
Biodiesel								
Rail								
Diesel	8,865	8,836	22	8				
Coal	-	-	-	-				
Marine								
Gasoline								
Distillate	-	-	-	-				
Residual Fuel Oil	-	-	-	-				
Off-road Mobile								
All Fuels (Diesel and Gasoline)	36,330	36,205	93	32				
Waste Management								
Solid Waste Management								
FOD from Waste Generation	9,635	-	9,635	-				
MSW incineration (non grid connected)								
Sewage Treatment								
Central WWTPs and Septic Systems Total reflects round	2,113		1,268	423				
Agriculture								
Livestock								
Enteric Fermentation	52,359		52,359					
Manure management	10,090		8,367	1,724				
Crop Production and Soil Management								
Use of Fertilizer	4,315			4,315				
Crop Residue Incineration								
Grand Totals	#REF!	937,876	#REF!	11,154	-	14,254	4,740	

REDC Emissions By Source and Sector
Year: 2010

REDC / County Name: Schoharie 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					Biogenic	Rolled Up?	Related GHG Metrics / Activity Data		
Scope 1	Scope 2	Scope 3	Metric	Unit			Value		
Built Environment		Residential Energy Consumption							
MV Electricity Consumption	Electricity / Steam		24,921		Yes	Consumption	MMBTU	374,648	
MV Direct Residential Fuel Consumption	Natural Gas	3,153			Yes	Consumption	MMBTU	59,409	
MV Direct Residential Fuel Consumption	Propane / LPG	9,721			Yes	Consumption	MMBTU	153,744	
MV Direct Residential Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	45,389			Yes	Consumption	MMBTU	611,642	
MV Direct Residential Fuel Consumption	Wood	1,461		69419.5541	Yes	Consumption	MMBTU	740,081	
		Commercial Energy Consumption							
MV Electricity Consumption	Electricity / Steam		7,796		Yes	Consumption	MMBTU	117,197	
MV Commercial Direct Fuel Consumption	Natural Gas	3,675			Yes	Consumption	MMBTU	69,249	
MV Commercial Direct Fuel Consumption	Propane / LPG	5,492			Yes	Consumption	MMBTU	86,861	
MV Commercial Direct Fuel Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	62,991			Yes	Consumption	MMBTU	848,833	
MV Commercial Direct Fuel Consumption	Residual Fuel Oil (#4 and #6)	-			Yes	Consumption	MMBTU	-	
MV Commercial Direct Fuel Consumption	Coal	113			Yes	Consumption	MMBTU	1,099	
MV Commercial Direct Fuel Consumption	Wood	717		34075.8545	Yes	Consumption	MMBTU	363,282	
		Industrial Energy Consumption							
MV Electricity Consumption	Electricity / Steam		8,024		Yes	Consumption	MMBTU	120,628	
MV Industrial Title V Consumption	Natural Gas	29,848			Yes	Consumption	MMBTU	562,400	
MV Industrial Title V Consumption	Propane / LPG	-			Yes	Consumption	MMBTU	-	
MV Industrial Title V Consumption	Distillate Fuel Oil (#1, #2, Kerosene)	-			Yes	Consumption	MMBTU	-	
MV Industrial Title V Consumption	Residual Fuel Oil (#4 and #6)	-			Yes	Consumption	MMBTU	-	
MV Industrial Title V Consumption	Coal	-			Yes	Consumption	MMBTU	-	
MV Industrial Title V Consumption	Wood	-		0	Yes	Consumption	MMBTU	-	
		Energy Generation and Supply							
MV Elec Generation GHG Analysis	Coal	-			No	Consumption	MMBTU	-	
MV Elec Generation GHG Analysis	Natural Gas	-			No	Consumption	MMBTU	-	
MV Elec Generation GHG Analysis	Distillate Fuel Oil (#1, #2 and #4)	-			No	Consumption	MMBTU	-	
MV Elec Generation GHG Analysis	Residual Fuel Oil (#4 and #6)	-			No	Consumption	MMBTU	-	
MV Elec Generation GHG Analysis	Wood / Biomass	-		0	No	Consumption	MMBTU	-	
MV Elec Generation GHG Analysis	MSW	-		0	No	MSW Combusted	MMBTU	-	
MV Elec Generation GHG Analysis	Other	-							
MV Electricity Consumption	Electricity T/D Losses		2,371		Yes	Losses	MMBTU	21,805	
MV Elec Generation GHG Analysis and MV Direct Fuel Consumption	Natural Gas T/D Losses	#REF!			Yes	Losses	MMBTU		
MV Electricity Consumption	Use of SF6 in the Utility Industry	545			Yes	Consumption	MMBTU	-	
		Industrial Processes							
Not Reported	Cement Production				Yes				
Not Reported	Iron and Steel Production				Yes				
Not Reported	Ferrous 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				
MV Industrial Sources	Glass Production				Yes				
Not Reported	Chemical Manufacturing				Yes				
		Product Use (Ozone Depleting Substances)							
MV Industrial Sources	All Refrigerants- except SF6	7,498			Yes				
		Transportation Energy							
MV Emission Summary - Onroad	Motor Gasoline (E-10)	227,646		16,522	Yes	Consumption	MMBTU	3,471,646	
MV Emission Summary - Onroad	Diesel	55,855			Yes	Consumption	MMBTU	752,674	
Not Reported	Ethanol (E-85)				No	Consumption	MMBTU		
Not Reported	Biodiesel				No	Consumption	MMBTU		
Not Reported	Electricity Consumption				No	Consumption	MMBTU		
		Rail							
MV Emission Summary - Rail	Diesel	3,488			Yes	Consumption	MMBTU	46,999	
MV Emission Summary - Rail	Coal Consumption				Yes	Consumption	MMBTU		
		Marine							
MV Emission Summary -Com Marine	Gasoline				Yes	Consumption	MMBTU		
MV Emission Summary -Com Marine	Distillate Fuels				Yes	Consumption	MMBTU		
MV Emission Summary -Com Marine	Residual Fuels				Yes	Consumption	MMBTU		
		Air							
MV Emission Summary-Aircraft	All Fuels (Jet and Aviation Gasoline)	25			No	Consumption	MMBTU	350	
		Off-road Mobile							
MV Emission Summary-Nonroad	All Fuels (Diesel and Gasoline)	28,237			Yes	Consumption	MMBTU	392,415	
		Waste Management							
MV Waste	Landfill (Scope 1), allocated FOD (Scope 3) used in roll up			3,810	Yes - ONLY Scope 3	MSW+CD Generated	Tonnes	11,864	
Not Reported	MSW incineration (non grid connected)				Yes	MSW+CD Processed	Tonnes		
		Sewage Treatment							
MV Waste water	Central WWTPs and Septic Systems	1,121			Yes	MSW Sent for Incineration	Tonnes		
		Livestock							
GHF_MV_Agriculture	Enteric Fermentation	29,750			Yes				
GHF_MV_Agriculture	Manure management	5,429			Yes				
		Crop Production and Soil Management							
GHF_MV_Agriculture	Use of Fertilizer	2,746			Yes				
Not Reported	Crop Residue Incineration				No				
		Land Use and Forestry							
GHG_MV_Forest	Urban Forest Annual Reserve	1,672			No				
GHG_MV_Forest	Forest Carbon Reserve (TOTAL)	46,181,989			No				
Grand Totals		Gross Totals	#REF!	43,112	3,810	120,017	#REF!		
		Total with Aircraft (as reported in WNY Sustainability Plan)	#REF!	43,112	3,810	120,017	#REF!		
		Net Totals							

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: Schoharie 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	24,921	24,800	17	105			
	Natural Gas	3,153	3,150	1	2			
	Propane / LPG	9,721	9,683	10	29			
	Distillate Fuel Oil (#1, #2, Kerosene)	45,389	45,237	39	114			
	Wood	1,461	-	497	964			
	Commercial Energy Consumption							
	Electricity / Steam	7,796	7,758	5	33			
	Natural Gas	3,675	3,672	1	2			
	Propane / LPG	5,492	5,471	5	16			
	Distillate Fuel Oil (#1, #2, Kerosene)	62,991	62,780	53	158			
	Residual Fuel Oil (#4 and #6)	-	-	-	-			
	Coal	113	112	0	1			
	Wood	717	-	244	473			
	Industrial Energy Consumption							
	Electricity / Steam	8,024	7,985	5	34			
	Natural Gas	29,848	29,818	12	17			
	Propane / LPG	-	-	-	-			
	Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-			
	Residual Fuel Oil (#4 and #6)	-	-	-	-			
	Coal	-	-	-	-			
	Wood	-	-	-	-			
	Energy Generation and Supply							
	Electricity T/D Losses	2,371	2,360	2	10			
	Natural Gas T/D Losses	#REF!		#REF!				
	Use of SF6 in the Utility Industry	545						545
	Industrial Processes							
	Cement Production							
	Iron and Steel Production							
	Ferrous Alloy Production							
	Aluminum Production							
Paper and Pulp								
Limestone Use								
Soda Ash Use								
Semi-Conductor Manufacturing								
Chemical Manufacturing								
Product Use (ODS Substitutes)								
All Refrigerants- except utility SF6	7,498						7,498	
Transportation Energy								
On-road ALL (Total reflects subtraction of ethanol)								
Motor Gasoline (E-10)	227,646	226,841	601	204				
Diesel	55,855	55,668	140	47				
Ethanol								
Biodiesel								
Rail								
Diesel	3,488	3,476	9	3				
Coal	-	-	-	-				
Marine								
Gasoline								
Distillate	-	-	-	-				
Residual Fuel Oil	-	-	-	-				
Off-road Mobile								
All Fuels (Diesel and Gasoline)	28,237	28,140	73	25				
Waste Management								
Solid Waste Management								
FOD from Waste Generation	3,810	-	3,810	-				
MSW incineration (non grid connected)								
Sewage Treatment								
Central WWTPs and Septic Systems Total reflects round	1,121		673	224				
Agriculture								
Livestock								
Enteric Fermentation	29,750		29,750					
Manure management	5,429		4,512	917				
Crop Production and Soil Management								
Use of Fertilizer	2,746			2,746				
Crop Residue Incineration								
Grand Totals	#REF!	516,949	#REF!	6,121	-	7,498	545	

Electricity Consumption GHG Emissions

County	# Households ²	Population ²	MWh	MMBTU ³	CO2e (Metric Tons) ¹			
					CO2	CH4	N2O	Total
New York State⁴	7,317,755	19,378,102	144,624,000					
Mohawk Valley	199,964	500,155	3,256,822	11,112,277	735,574	495	3,100	739,169
Fulton	22,554	55,531	321,578	1,097,224	72,630	49	306	72,985
Herkimer	26,324	64,519	359,046	1,225,066	81,093	55	342	81,489
Montgomery	20,272	50,219	356,191	1,215,322	80,448	54	339	80,841
Oneida	24,620	62,259	480,332	1,638,893	108,486	73	457	109,016
Otsego	93,028	234,878	1,560,170	5,323,300	352,375	237	1,485	354,097
Schoharie	13,166	32,749	179,506	612,473	40,543	27	171	40,741

Sector	% of total	Population	MWh	MMBTU ³	CO2e (Metric Tons) ¹			
					CO2	CH4	N2O	Total
Mohawk Valley		500,155	3,256,822	11,112,277	1,241,491	835	5,233	1,247,559
Residential			1,457,899	4,974,350	329,276	221	1,388	330,885
Fulton		55,531	162,534	554,567	36,709	25	155	36,889
Herkimer		64,519	190,035	648,401	42,921	29	181	43,131
Montgomery		50,219	136,664	466,296	30,866	21	130	31,017
Oneida		62,259	214,840	733,033	48,523	33	205	48,760
Otsego		234,878	644,022	2,197,404	145,457	98	613	146,168
Schoharie		32,749	109,803	374,648	24,800	17	105	24,921
Commercial⁵			782,093	2,668,502	176,641	119	745	177,504
Fulton		55,531	61,084	208,420	13,796	9	58	13,864
Herkimer		64,519	77,562	264,641	17,518	12	74	17,603
Montgomery		50,219	61,693	210,496	13,934	9	59	14,002
Oneida		62,259	243,301	830,142	54,951	37	232	55,220
Otsego		234,878	304,105	1,037,605	68,684	46	289	69,020
Schoharie		32,749	34,349	117,197	7,758	5	33	7,796
Industrial			1,016,830	3,469,426	229,658	154	968	230,780
Fulton		55,531	97,959	334,236	22,125	15	93	22,233
Herkimer		64,519	91,449	312,024	20,654	14	87	20,755
Montgomery		50,219	157,834	538,530	35,648	24	150	35,822
Oneida		62,259	22,192	75,718	5,012	3	21	5,037
Otsego		234,878	612,043	2,088,290	138,234	93	583	138,909
Schoharie		32,749	35,354	120,628	7,985	5	34	8,024

- Notes
1. CO2e calculated based on regional electricity consumption provided by WNY Electricity providers and eGRID 2012 NYUP emission factors. Some energy use data is estimated based on regional averages.
 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 commercial and government sectors

Grid Losses (Energy and Emissions) from Electricity Consumption

County	MWh	MMBTU ³	CO2e (Metric Tons)			
			CO2	CH4	N2O	Total
Finger Lakes	84,850	289,507	42,810	29	180	43,020
Fulton	9,459	32,276	4,227	3	18	4,248
Herkimer	11,060	37,737	4,720	3	20	4,743
Montgomery	7,954	27,138	4,682	3	20	4,705
Oneida	12,504	42,663	6,314	4	27	6,345
Otsego	37,482	127,889	20,508	14	86	20,608
Schoharie	6,391	21,805	2,360	2	10	2,371

2. New York State Totals from EIA New York <http://www.eia.gov/electricity/state/newyork/>

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
Mohawk Valley	3,256,822	9,895
Fulton	321,578	977
Herkimer	359,046	1,091
Montgomery	356,191	1,082
Oneida	480,332	1,459
Otsego	1,560,170	4,740
Schoharie	179,506	545

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.htm>

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

File Name:

MV Electricity Consumption1_15.xlsx

Date:

1/15/2013

Electricity Generation GHG Emissions

	Total Fuel Consumption ¹	Units	Total Fuel Consumption (MMBTU)	CO2e (Metric Tons) ¹						
				MWh Generated	Non-biogenic CO2	CH4	N2O	Non biogenic Total	Biogenic Total ³	
New York State²				136,961,654	41,583,758					
Coal				13,582,766						
Natural Gas				48,915,545						
Fuel Oil, Kerosene, etc.				2,004,975						
Petroleum Coke										
Landfill										
Nuclear				41,869,535						
Hydro				25,471,697						
Other renewables				4,814,548						
Mohawk Valley: Total				502,023	11,501	16	41	16,177	9,236	0.367% Generation in NYS
Mohawk Valley: Renewable Energy				469,983	-	6	17	23	4,618	
Distillate Fuel Oil (#1, 2, or 4)	35	barrels	204	3	15	0	0	15	-	
Otsego County	35	barrels	204	3	15	0	0	15		
Oneida County	0	barrels	0	-	-	-	-	-		
Landfill Gas³	194,914	mcf	88,685	7,968	-	6	17	23	4,618	
Fulton County	194,914	mcf	88,685	7,968	-	6	17	23	4,618	
Natural Gas	99,448	mcf	108,173	12,033	5,735	2	3	5,741	-	
Oneida County	99,448	mcf	108,173	12,033	5,735	2	3	5,741		
Hydro⁴	0	0	4,507,423	462,015	0	0	0	0	0	
Fulton County	0	0	115,598	11,849	-	-	-	-		
Herkimer County	0	0	1,881,994	192,906	-	-	-	-		
Oneida County	0	0	2,454,648	251,604	-	-	-	-		
Otsego County	0	0	55,183	5,656	-	-	-	-		

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 Mandatory 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 Totals from EIA New York <http://www.eia.gov/electricity/state/newyork/>

3. CO2 from landfill gas are considered a source of biogenic 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 Losses¹

	% T&D Loss	Total Natural Gas (mcf)	CH4 Losses in mcf	CH4 Losses in lbs	Total CO2e
Mohawk Valley	1.8%	99,448	1,790	80,195	764
Fulton County	1.8%	-	-	-	-
Herkimer County	1.8%	-	-	-	-
Montgomery County	1.8%	-	-	-	-
Oneida County	1.8%	99,448	1,790	80,195	764
Otsego County	1.8%	-	-	-	-
Schoharie County	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:

MV Elec Generation GHG Analysis1_14.xlsx

Date:

1/14/2013

Residential Building Emissions from Stationary Combustion

	# Households ²	mmBTU ²	CO ₂ e (Metric Tons) ¹				Biogenic Total ³
			CO ₂	CH ₄	N ₂ O	Total	
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	
Mohawk Valley	199,964	23,993,619	1,106,550	4,267	8,562	1,119,379	503,171
Natural Gas	90,564	12,177,874	645,671	256	378	646,304	
Bottled, Tank, or LP gas	13,769	1,486,885	93,644	94	277	94,014	
Fuel Oil, Kerosene, etc.	65,570	4,962,574	367,032	313	923	368,268	
Wood	15,980	5,364,299	-	3,605	6,984	10,589	503,171
Coal	794	1,989	203	0	1	204	
Fulton County	22,554	2,729,621	121,595	550	1,102	123,247	66,285
Natural Gas	9,153	1,251,899	66,376	26	39	66,441	
Bottled, Tank, or LP gas	1,472	164,914	10,386	10	31	10,427	
Fuel Oil, Kerosene, etc.	7,473	606,034	44,822	38	113	44,973	
Wood	1,975	706,665	-	475	920	1,395	66,285
Coal	39	109	11	0	0	11	
Herkimer County	26,324	3,429,908	147,598	720	1,432	149,750	88,227
Natural Gas	11,141	1,647,911	87,372	35	51	87,458	
Bottled, Tank, or LP gas	1,515	183,618	11,564	12	34	11,610	
Fuel Oil, Kerosene, etc.	7,495	657,387	48,620	41	122	48,784	
Wood	2,431	940,591	-	632	1,225	1,857	88,227
Coal	134	400	41	0	0	41	
Montgomery County	20,272	2,190,278	103,407	360	722	104,489	41,778
Natural Gas	9,310	1,175,829	62,342	25	36	62,404	
Bottled, Tank, or LP gas	908	94,000	5,920	6	17	5,944	
Fuel Oil, Kerosene, etc.	6,339	474,709	35,110	30	88	35,228	
Wood	1,348	445,395	-	299	580	879	41,778
Coal	136	345	35	0	0	35	
Oneida County	93,028	10,374,722	529,814	987	1,965	532,767	99,135
Natural Gas	56,209	7,382,321	391,411	155	229	391,795	
Bottled, Tank, or LP gas	4,028	433,485	27,301	27	81	27,409	
Fuel Oil, Kerosene, etc.	19,282	1,501,602	111,058	95	279	111,432	
Wood	3,076	1,056,880	-	710	1,376	2,086	99,135
Coal	164	434	44	0	0	45	
Otsego County	24,620	3,703,907	146,034	1,104	2,232	149,370	138,326
Natural Gas	3,960	660,505	35,020	14	20	35,054	
Bottled, Tank, or LP gas	3,345	457,122	28,790	29	85	28,903	
Fuel Oil, Kerosene, etc.	11,236	1,111,199	82,184	70	207	82,461	
Wood	3,380	1,474,688	-	991	1,920	2,911	138,326
Coal	117	393	40	0	0	40	
Schoharie County	13,166	1,565,184	58,101	547	1,108	59,756	69,420
Natural Gas	792	59,409	3,150	1	2	3,153	
Bottled, Tank, or LP gas	2,501	153,744	9,683	10	29	9,721	
Fuel Oil, Kerosene, etc.	13,746	611,642	45,237	39	114	45,389	
Wood	3,770	740,081	-	497	964	1,461	69,420
Coal	204	308	31	0	0	32	

Notes:

1. CO₂e calculated based on allocation of EIA 2010 Residential Energy use in New York*, using fuel type emission factors from EPA's Mandatory 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 through 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

4. Renewable sources highlighted in green

GHG Emissions from Natural Gas Use Transmission and Distribution Losses¹

	% T&D Loss	Total Natural Gas (mcf)	CH4 Losses in mcf	CH4 Losses in lbs	Total CO2e
Mohawk Valley	1.8%	11,846,180.52	213,231	9,552,759.97	90,994
Fulton	1.8%	1,217,800.38	21,920	982,034.23	9,354
Herkimer	1.8%	1,603,026.41	28,854	1,292,680.50	12,313
Montgomery	1.8%	1,143,802.21	20,588	922,362.10	8,786
Oneida	1.8%	7,181,246.39	129,262	5,790,957.09	55,161
Otsego	1.8%	642,514.71	11,565	518,123.86	4,935
Schoharie	1.8%	57,790.41	1,040	46,602.19	444

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:

MV Residential Direct Energy Sources 1_14_13.xlsx

Date:

1/14/2012

Commercial Energy Use Emissions

	CO2e (Metric Tons) ¹							Biogenic Total ³
	Workers ²	Sq Footage ²	mmBTU ¹	CO ₂	CH ₄	N ₂ O	Total	
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	
Mohawk Valley	142,029	155,691,914	13,988,509	751,552	1,438	2,991	755,980	
Natural Gas	79,462	77,110,718	8,083,786	428,602	170	251	429,023	
Bottled, Tank, or LP gas	9,479	11,378,175	470,455	29,629	30	88	29,746	
Fuel Oil, Kerosene, etc.	42,979	53,813,475	3,960,278	292,902	249	737	293,888	
Wood³	9,646	12,756,743	1,469,894	-	988	1,914	2,902	137,876
Coal	462	632,803	4,095	418	1	2	421	
Fulton County	13,374	13,918,098	1,232,099	65,401	145	302	65,848	
Natural Gas	6,087	6,334,278	656,007	34,781	14	20	34,816	
Bottled, Tank, or LP gas	979	1,018,447	41,886	2,638	3	8	2,648	
Fuel Oil, Kerosene, etc.	4,969	5,171,313	378,093	27,964	24	70	28,058	
Wood³	1,313	1,366,792	155,939	-	105	203	308	14,627
Coal	26	27,268	174	18	0	0	18	
Herkimer County	11,487	12,189,173	1,280,385	66,277	156	320	66,754	
Natural Gas	5,634	5,978,024	723,354	38,352	15	22	38,390	
Bottled, Tank, or LP gas	766	813,003	39,066	2,460	2	7	2,470	
Fuel Oil, Kerosene, etc.	3,790	4,021,803	343,559	25,410	22	64	25,495	
Wood³	1,229	1,304,325	173,869	-	117	226	343	16,309
Coal	68	72,018	538	55	0	0	55	
Montgomery County	12,893	13,572,997	1,218,557	66,086	117	244	66,446	
Natural Gas	6,654	7,004,370	725,404	38,461	15	22	38,499	
Bottled, Tank, or LP gas	649	683,445	28,108	1,770	2	5	1,777	
Fuel Oil, Kerosene, etc.	4,530	4,769,013	348,680	25,788	22	65	25,875	
Wood³	963	1,014,218	115,714	-	78	151	228	10,854
Coal	97	101,950	652	66	0	0	67	
Oneida County	84,787	79,092,976	7,405,428	404,691	437	890	406,018	
Natural Gas	57,586	53,718,976	5,563,382	294,971	117	172	295,260	
Bottled, Tank, or LP gas	4,127	3,850,003	158,338	9,972	10	29	10,012	
Fuel Oil, Kerosene, etc.	19,754	18,427,447	1,347,297	99,646	85	251	99,982	
Wood³	3,151	2,939,825	335,409	-	225	437	662	31,461
Coal	168	156,726	1,002	102	0	0	103	
Otsego County	19,487	18,899,111	1,482,715	77,063	277	586	77,926	
Natural Gas	3,502	3,396,133	346,391	18,366	7	11	18,384	
Bottled, Tank, or LP gas	2,958	2,868,751	116,195	7,318	7	22	7,347	
Fuel Oil, Kerosene, etc.	9,935	9,635,540	693,817	51,315	44	129	51,487	
Wood³	2,989	2,898,475	325,682	-	219	424	643	30,549
Coal	103	100,211	631	64	0	0	65	
Schoharie County	5,953	18,019,560	1,369,324	72,034	305	650	72,988	
Natural Gas	224	678,936	69,249	3,672	1	2	3,675	
Bottled, Tank, or LP gas	708	2,144,525	86,861	5,471	5	16	5,492	
Fuel Oil, Kerosene, etc.	3,894	11,788,360	848,833	62,780	53	158	62,991	
Wood³	1,068	3,233,108	363,282	-	244	473	717	34,076
Coal	58	174,630	1,099	112	0	1	113	

Notes:

1. CO2e calculated based on allocation of EIA 2010 Commercial Energy use in New York*, using fuel type emission factors from EPA's Mandatory 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 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

GHG Emissions from Natural Gas Use Transmission and Distribution Losses¹

	% T&D Loss	Total Natural Gas (mcf)	CH4 Losses in mcf	CH4 Losses in lbs	Total CO2e
Mohawk Valley	1.8%	7,863,605.16	141,545	6,341,211.20	60,403
Fulton	1.8%	638,138.85	11,486	514,595.17	4,902
Herkimer	1.8%	703,651.46	12,666	567,424.53	5,405
Montgomery	1.8%	705,646.39	12,702	569,033.25	5,420
Oneida	1.8%	5,411,850.13	97,413	4,364,115.95	41,570
Otsego	1.8%	336,955.93	6,065	271,721.27	2,588
Schoharie	1.8%	67,362.40	1,213	54,321.04	517

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:

MV Commercial Energy Emissions 1_14_13.xlsx

Date:

1/14/2013

Industrial Energy Use Emissions

	CO2e (Metric Tons) ¹					
	mmBTU ²	CO ₂	CH ₄	N ₂ O	Total	Biogenic Total ³
New York State²	172,806,620	7,834,093	6,160	12,718	7,852,971	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	
<i>Heating Oil #1</i>	1,103,236	80,812	70	205	81,087	
<i>Heating Oil #2</i>	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	
<i>Heating Oil #4</i>	1,300,971	97,625	82	242	97,949	
<i>Heating Oil #6</i>	13,264,821	996,188	836	2,467	999,491	
Coal	12,699,950	1,193,241	2,934	6,299	1,202,474	
<i>Bituminous Coal</i>	11,911,597	1,112,543	2,752	5,908	1,121,203	
<i>Anthracite Coal</i>	169,701	17,571	39	84	17,694	
<i>Coke</i>	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						
Mohawk Valley	1,977,477	98,492	129	235	98,857	12,462
Natural Gas	1,812,060	96,075	38	56	96,170	
LPG	1,221	77	0	0	77	
Distillate Fuel Oil (#1, #2, Kerosene)	11,889	879	1	2	882	
<i>Heating Oil #1</i>	-	-	-	-	-	
<i>Heating Oil #2</i>	11,889	879	1	2	882	
Residual Fuel Oil (#4 and #6)	19,448	1,461	1	4	1,465	
<i>Heating Oil #4</i>	-	-	-	-	-	
<i>Heating Oil #6</i>	19,448	1,461	1	4	1,465	
Coal	-	-	-	-	-	
<i>Bituminous Coal</i>	-	-	-	-	-	
<i>Anthracite Coal</i>	-	-	-	-	-	
<i>Coke</i>	-	-	-	-	-	
Wood ³	132,859	-	89	173	262	12,462
MSW	-	-	-	-	-	
Solid Other						
Liquid Other						
Fulton County	16,093	853	0	0	854	
Natural Gas	16,093	853	0	0	854	
LPG	-	-	-	-	-	
Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-	-	
<i>Heating Oil #1</i>	-	-	-	-	-	
<i>Heating Oil #2</i>	-	-	-	-	-	
Residual Fuel Oil (#4 and #6)	-	-	-	-	-	
<i>Heating Oil #4</i>	-	-	-	-	-	
<i>Heating Oil #6</i>	-	-	-	-	-	
Coal	-	-	-	-	-	
<i>Bituminous Coal</i>	-	-	-	-	-	
<i>Anthracite Coal</i>	-	-	-	-	-	
<i>Coke</i>	-	-	-	-	-	
Wood ³	-	-	-	-	-	
MSW	-	-	-	-	-	
Solid Other						
Liquid Other						
Herkimer County	698,676	37,044	15	22	37,080	
Natural Gas	698,676	37,044	15	22	37,080	
LPG	-	-	-	-	-	
Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-	-	
<i>Heating Oil #1</i>	-	-	-	-	-	
<i>Heating Oil #2</i>	-	-	-	-	-	
Residual Fuel Oil (#4 and #6)	-	-	-	-	-	
<i>Heating Oil #4</i>	-	-	-	-	-	
<i>Heating Oil #6</i>	-	-	-	-	-	
Coal	-	-	-	-	-	
<i>Bituminous Coal</i>	-	-	-	-	-	
<i>Anthracite Coal</i>	-	-	-	-	-	
<i>Coke</i>	-	-	-	-	-	
Wood ³	-	-	-	-	-	
MSW	-	-	-	-	-	
Solid Other						
Liquid Other						

Industrial Energy Use Emissions

	CO2e (Metric Tons) ¹					Biogenic Total ³
	mmBTU ²	CO ₂	CH ₄	N ₂ O	Total	
Montgomery County	528,384	28,015	11	16	28,042	
Natural Gas	528,384	28,015	11	16	28,042	
LPG	-	-	-	-	-	
Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-	-	
<i>Heating Oil #1</i>	-	-	-	-	-	
<i>Heating Oil #2</i>	-	-	-	-	-	
Residual Fuel Oil (#4 and #6)	-	-	-	-	-	
<i>Heating Oil #4</i>	-	-	-	-	-	
<i>Heating Oil #6</i>	-	-	-	-	-	
Coal	-	-	-	-	-	
<i>Bituminous Coal</i>	-	-	-	-	-	
<i>Anthracite Coal</i>	-	-	-	-	-	
<i>Coke</i>	-	-	-	-	-	
Wood³	-	-	-	-	-	
MSW	-	-	-	-	-	
Solid Other	-	-	-	-	-	
Liquid Other	-	-	-	-	-	
Oneida County	171,925	2,762	91	179	3,033	
Natural Gas	6,508	345	0	0	345	
LPG	1,221	77	0	0	77	
Distillate Fuel Oil (#1, #2, Kerosene)	11,889	879	1	2	882	
<i>Heating Oil #1</i>	-	-	-	-	-	
<i>Heating Oil #2</i>	11,889	879	1	2	882	
Residual Fuel Oil (#4 and #6)	19,448	1,461	1	4	1,465	
<i>Heating Oil #4</i>	-	-	-	-	-	
<i>Heating Oil #6</i>	19,448	1,461	1	4	1,465	
Coal	-	-	-	-	-	
<i>Bituminous Coal</i>	-	-	-	-	-	
<i>Anthracite Coal</i>	-	-	-	-	-	
<i>Coke</i>	-	-	-	-	-	
Wood³	132,859	-	89	173	262	12,462
MSW	-	-	-	-	-	
Solid Other	-	-	-	-	-	
Liquid Other	-	-	-	-	-	
Otsego County	-	-	-	-	-	
Natural Gas	-	-	-	-	-	
LPG	-	-	-	-	-	
Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-	-	
<i>Heating Oil #1</i>	-	-	-	-	-	
<i>Heating Oil #2</i>	-	-	-	-	-	
Residual Fuel Oil (#4 and #6)	-	-	-	-	-	
<i>Heating Oil #4</i>	-	-	-	-	-	
<i>Heating Oil #6</i>	-	-	-	-	-	
Coal	-	-	-	-	-	
<i>Bituminous Coal</i>	-	-	-	-	-	
<i>Anthracite Coal</i>	-	-	-	-	-	
<i>Coke</i>	-	-	-	-	-	
Wood³	-	-	-	-	-	-
MSW	-	-	-	-	-	
Solid Other	-	-	-	-	-	
Liquid Other	-	-	-	-	-	
Schoharie County	562,400	29,818	12	17	29,848	
Natural Gas	562,400	29,818	12	17	29,848	
LPG	-	-	-	-	-	
Distillate Fuel Oil (#1, #2, Kerosene)	-	-	-	-	-	
<i>Heating Oil #1</i>	-	-	-	-	-	
<i>Heating Oil #2</i>	-	-	-	-	-	
Residual Fuel Oil (#4 and #6)	-	-	-	-	-	
<i>Heating Oil #4</i>	-	-	-	-	-	
<i>Heating Oil #6</i>	-	-	-	-	-	
Coal	-	-	-	-	-	
<i>Bituminous Coal</i>	-	-	-	-	-	
<i>Anthracite Coal</i>	-	-	-	-	-	
<i>Coke</i>	-	-	-	-	-	
Wood³	-	-	-	-	-	-
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 Mandatory 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 Losses¹

	% T&D Loss	Total Natural Gas (mcf)	CH4 Losses in mcf	CH4 Losses in lbs	Total CO2e
Mohawk Valley	1.8%	1,762,704.23	31,729	1,421,444.69	13,540
Fulton	1.8%	15,654.47	282	12,623.77	120
Herkimer	1.8%	679,645.43	12,234	548,066.07	5,221
Montgomery	1.8%	513,992.12	9,252	414,483.24	3,948
Oneida	1.8%	6,330.50	114	5,104.91	49
Otsego	1.8%	-	-	-	-
Schoharie	1.8%	547,081.71	9,847	441,166.69	4,202

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:

WNY Industrial Emissions 1-14-13.xlsx

Date:

1/14/2013

Industrial GHG Emissions

2010 Emissions reported as part of EPA MRR Program

Region	Source	Process	CO2e (Metric Tons)						
			Emissions by Type ¹						Total CO2e
			CO2	CH ₄	N ₂ O	CF ₄	C ₂ F ₆	CHF ₃	
New York State									
Mohawk Valley									
Fulton County	None								
Herkimer County	None								
Montgomery County	None								
Oneida County	None								
Otsego County	None								
Schoharie County	None								

Notes:

1. There are no major GHG emission sources (except landfill and energy generation, which are included elsewhere) reporting to EPA for MRR in the Mohawk Valley.

Ozone Depleting Substance Substitution Emissions

Region	Population	HFC Emissions	
		Total CO2e (Metric Tons)	
New York State	19,378,102	4,436,697	
Mohawk Valley	500,155	114,512.57	
Fulton County	55,531	12,714.05	
Herkimer County	64,519	14,771.89	
Montgomery County	50,219	11,497.85	
Oneida County	234,878	53,776.29	
Otsego County	62,259	14,254.46	
Schoharie County	32,749	7,498.02	

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 and Forecasts for the 2009 State Energy Plan, NYSERDA, August 6, 2009)

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

File Name:

MV Industrial Sources 11-27-12.xlsx

Date:

11/27/2012

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

County	Annual Vehicle Miles Travelled ¹ (VMT)	Annual GHG Emissions ² (metric tons CO ₂ e/yr)			
		CO ₂	N ₂ O	CH ₄	Total
Fulton	420,525,583	190,035	476	163	190,674
Herkimer	734,459,120	338,698	848	291	339,837
Montgomery	767,887,947	366,964	919	315	368,198
Oneida	2,134,447,503	966,998	2,363	830	970,192
Otsego	685,087,994	314,911	788	271	315,970
Schoharie	620,466,537	299,017	749	257	300,023
Mohawk Valley NY Total	5,362,874,684	2,476,625	6,144	2,125	2,484,894

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	Mohawk Valley NY Annual GHG Emissions (metric tons CO ₂ e/yr)
Non-Biogenic	Gasoline ¹	1,936,345
	Diesel	408,014
	Total	2,344,359
Biogenic	Ethanol ¹	140,535
TOTAL		2,484,894

Notes:

1. Portion of Gasoline E-10.
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.

Fuel Type	Mohawk Valley NY Annual Energy Consumption ¹ (MMBtu/yr)
Gasoline (E-10)	29,529,656
Diesel	5,635,324
Total	35,164,980

Notes:

1. Annual energy consumption is based on projected fuel consumption calculated from NYSDOT VMT data and national fleet fuel economy data.

County	Annual Fuel Consumption (MMBtu/yr)		
	Gasoline (E-10)	Diesel	Total
Fulton	2,305,976	383,921	2,689,897
Herkimer	4,037,129	753,247	4,790,376
Montgomery	4,242,655	940,638	5,183,293
Oneida	11,683,691	2,001,279	13,684,970
Otsego	3,788,559	803,565	4,592,124
Schoharie	3,471,646	752,674	4,224,320
Mohawk Valley NY Total	29,529,656	5,635,324	35,164,980

Notes:

fleet fuel economy data.

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

Fuel Type	Mohawk Valley NY GHG Emissions (metric tons CO ₂ e/yr)			
	CO ₂	N ₂ O	CH ₄	Total
Finger Lakes	2,476,625	6,144	2,125	2,484,894
Gasoline	1,929,503	5,111	1,731	1,936,345
Ethanol	140,418	70	47	140,535
Diesel	406,704	963	347	408,014
Fulton	190,035	476	163	190,674
Gasoline	150,675	399	135	151,209
Ethanol	10,965	5	4	10,974
Diesel	28,395	71	24	28,490
Herkimer	338,698	848	291	339,837
Gasoline	263,791	699	237	264,726
Ethanol	19,197	10	6	19,213
Diesel	55,710	140	47	55,898
Montgomery	366,964	919	315	368,198
Gasoline	277,220	734	249	278,203
Ethanol	20,174	10	7	20,191
Diesel	69,570	175	59	69,804
Oneida	966,998	2,363	830	970,192
Gasoline	763,426	2,022	685	766,133
Ethanol	55,558	28	19	55,604
Diesel	148,015	314	126	148,454
Otsego	314,911	788	271	315,970
Gasoline	247,549	656	222	248,427
Ethanol	18,015	9	6	18,030
Diesel	49,347	124	42	49,513
Schoharie	299,017	749	257	300,023
Gasoline	226,841	601	204	227,646
Ethanol	16,508	8	6	16,522
Diesel	55,668	140	47	55,855

1. Portion of Gasoline E-10.

distribution of GHG emissions for the components of gasoline E-10 (i.e., gasoline and ethanol) is based on a fraction of 90%

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

File Name:

MV Transportation - Onroad - 2013_1_15.xlsx

Date:

1/15/2013

Table 1
GHG Emission Summary
Transportation: Railroads
Mohawk Valley New York Region

County	Annual Diesel Consumption ¹ (gal/yr)	Annual diesel Consumption (MMBtu/yr)	Direct GHG Emissions from Diesel Train Engine Systems ² (metric tons CO ₂ e/yr)			
			CO ₂	N ₂ O	CH ₄	Total
Fulton	0	0	0	0	0	0
Herkimer	1,866,838	257,624	19,054	48	16	19,118
Montgomery	3,143,283	433,773	32,082	81	27	32,190
Oneida	2,269,425	313,181	23,163	58	20	23,241
Otsego	865,697	119,466	8,836	22	8	8,865
Schoharie	340,570	46,999	3,476	9	3	3,488
Mohawk Valley NY Total	8,485,813	1,171,042	86,610	218	74	86,902

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 Electrical Consumption ¹ (kW-hr/yr)	Indirect GHG Emissions from Electric Train Systems ² (metric tons CO ₂ e/yr)			
		CO ₂	N ₂ O	CH ₄	Total
Mohawk Valley NY Total	0	-	-	-	-

County	GHG Emissions from All Train Systems (metric tons CO ₂ e/yr)			
	CO ₂	N ₂ O	CH ₄	Total
Fulton	0	0	0	0
Herkimer	19,054	48	16	19,118
Montgomery	32,082	81	27	32,190
Oneida	23,163	58	20	23,241
Otsego	8,836	22	8	8,865
Schoharie	3,476	9	3	3,488
Mohawk Valley NY Total	86,610	218	74	86,902

Power/Fuel Type	Mohawk Valley NY Annual Energy Consumption (MMBtu/yr)
Diesel	1,171,042
Electric	0
Total	1,171,042

Notes:

1. Energy consumption for diesel systems calculated from diesel consumption based on NYSERDA Study of rail systems in New York 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:

MV Transportation - Rail - 2013_1_14.xlsx

Date:

1/14/2013

Table 1
GHG Emission Summary
Transportation: Commercial Marine Vessels
Mohawk Valley 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 ₂ e/yr)			
				CO ₂	N ₂ O	CH ₄	Total
Diesel	Fulton	0	0	0	0	0	0
	Herkimer	37	5	0.8	0.001	0.0003	0.8
	Montgomery	62	9	1	0.002	0.0005	1
	Oneida	50	7	1	0.001	0.0004	1
	Otsego	0	0	0	0	0	0
	Schoharie	0	0	0	0	0	0
	Mohawk Valley NY Total		150	21	3	0.004	0.001
Residual Fuel Oil	Fulton	0	0	0	0	0	0
	Herkimer	0	0	0	0	0	0
	Montgomery	0	0	0	0	0	0
	Oneida	0	0	0	0	0	0
	Otsego	0	0	0	0	0	0
	Schoharie	0	0	0	0	0	0
	Mohawk Valley NY Total		0	0	0	0	0
All Fuel Types	Fulton	0	0	0	0	0	0
	Herkimer	37	5	0.8	0.001	0.0003	1
	Montgomery	62	9	1	0.002	0.0005	1
	Oneida	50	7	1	0.001	0.0004	1
	Otsego	0	0	0	0.000	0.0000	0
	Schoharie	0	0	0	0.000	0.0000	0
	Mohawk Valley NY Total		150	21	3	0.004	0.001

Notes:

1. Fuel consumption estimated by dividing annual CO₂ emissions by corresponding fuel heat value and emission-factor-energy.
2. CO₂ emissions calculated by multiplying EPA estimated annual SO₂ emission rate by ratio of CO₂ to SO₂ emissions for applicable fuel.
3. N₂O and CH₄ emissions estimated using using EPA emission factors and fuel consumption estimates.

Fuel Type	Mohawk Valley NY Annual Energy Consumption ¹ (MMBtu/yr)
Diesel	21
Residual Fuel Oil	0
Total	21

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:

MV Transportation - Com Marine - 2013_1_14.xlsx

Date:

1/14/2013

Table 1
Greenhouse Gas Emission Inventory Summary
Transportation: Aircraft
Mohawk Valley New York Region

County	Annual Jet Fuel Consumption ¹ (gal/yr)	Annual Energy Consumption ² (MMBtu/yr)	GHG Emissions ^{3,4} (metric tons CO ₂ e/yr)			
			CO ₂	N ₂ O	CH ₄	Total
Fulton	17,416	2,351	167	0.4	0.1	168
Herkimer	19,716	2,662	188	0.5	0.2	189
Montgomery	6,901	932	67	0.2	0.06	67
Oneida	202,422	27,327	1,943	5	1.7	1,950
Otsego	73,280	9,893	705	2	0.6	707
Schoharie	2,596	350	25	0.07	0.02	25
Mohawk Valley NY Total	322,332	43,515	3,095	8	3	3,106

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. Annual energy consumption is based on projected fuel consumption as estimated using FAA's EDMS model.
3. CO₂ 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.
4. N₂O and CH₄ emissions estimated using using EPA emission factors and jet fuel consumption estimates.

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

File Name:

MV Transportation - Aircraft - 2012_11_29.xlsx

Date:

11/29/2012

Table 1
GHG Emissions Summary
Transportation: Non-Road Equipment
Mohawk Valley New York Region

County	Energy Consumption (MMBtu/yr)	GHG Emissions ^{1,2} (metric tons CO ₂ e/yr)			
		CO ₂	N ₂ O	CH ₄	Total
Fulton	466,767	32,953	86	29	33,069
Herkimer	776,114	55,325	144	49	55,517
Montgomery	710,639	51,072	132	45	51,249
Oneida	1,616,964	115,235	298	101	115,635
Otsego	503,854	36,205	93	32	36,330
Schoharie	392,415	28,140	73	25	28,237
Mohawk Valley NY Total	4,466,754	318,931	826	280	320,037

Notes:

1. CO₂ emissions based on NYSDEC runs of the NONROAD emission model for the state emission inventory for Year 2007.
2. N₂O and CH₄ emissions based the use of EPA emission factors for N₂O and CH₄ based on fuel combustion. Fuel consumption estimated with reserve application of CO₂ emission factors (for fuel) to CO₂ emissions.

Fuel Type	Mohawk Valley NY Annual Fuel Consumption ¹		Mohawk Valley NY GHG Emissions ^{2,3} (metric tons CO ₂ e/yr)			
	(scf/yr)	(gal/yr)	CO ₂	N ₂ O	CH ₄	Total
CNG	29,567,988	-	1,612	1	1	1,613
Diesel	-	16,363,320	167,012	420	142	167,574
Gasoline	-	14,500,341	127,277	337	114	127,728
LPG	-	3,974,749	23,030	68	23	23,121
TOTAL	-	-	318,931	826	280	320,037

Notes:

1. Fuel consumption estimated with reserve application of CO₂ emission factors (for fuel) to CO₂ emissions.
2. CO₂ emissions based on NYSDEC runs of the NONROAD emission model for the state emission inventory for Year 2007.
3. N₂O and CH₄ emissions based the use of EPA emission factors for N₂O and CH₄ based on fuel combustion.

Fuel Type	Mohawk Valley NY Annual Energy Consumption (MMBtu/yr)
CNG	30,396
Diesel	2,258,138
Gasoline	1,812,543
LPG	365,677
Total	4,466,754

Notes:

1. Annual energy consumption is based on projected fuel consumption calculated from NYSDEC CO₂ emission estimates.

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

File Name:

MV Transportation - Nonroad - 2013_1_14.xlsx

Date:

1/14/2013

Waste Disposal Emissions

	Regional average Municipal Solid Waste (MSW) generated per capita (short tons)	Total MSW (Short tons) ³	Population	CO2e (Metric Tons), 2010 ^{1,2}				
				Nonbiogenic CO2	CH ₄	N ₂ O	Total non biogenic	CO2 biogenic ⁴
Mohawk Valley: Direct Emissions¹		213,573	500,155	190	151,814	1	152,006	0
Fulton		41,742	55,531	80	70,867	0	70,948	0
Herkimer		-	64,519	0	0	0	0	0
Montgomery		-	50,219	0	0	0	0	0
Onieda		171,831	234,878	110	52,042	0	52,153	0
Otsego		-	62,259	0	28,905	0	28,905	0
Scholarie		-	32,749	0	0	0	0	0
Mohawk Valley: Indirect Emissions²	0.53	267,043	500,155	0	85,764	0	85,764	-
Fulton	0.38	21,344	55,531	0	6,855	0	6,855	0
Herkimer	0.57	37,029	64,519	0	11,892	0	11,892	0
Montgomery	0.64	32,004	50,219	0	10,278	0	10,278	0
Onieda	0.57	134,802	234,878	0	43,293	0	43,293	0
Otsego	0.48	30,000	62,259	0	9,635	0	9,635	0
Scholarie	0.36	11,864	32,749	0	3,810	0	3,810	0

Notes

1. Total emissions as reported for all waste facilities in Mohawk Valley (including closed facilities Fulton and Herkimer) in 2010 EPA MRR GHG Reporting Data
2. Indirect emissions calculated based on tons of waste generated by each county using CARB FOD Model
3. Waste data from MV DEC Waste Summary_WORKING_Dec 17 2012.xlsx, provided by J Dumpert (E&E), compiled data from DEC 2010 Annual Planning Unit Recycling Reports
4. Biogenic emissions were not reported

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

File Name:

MV Waste 1_14 BOD method.xlsx

Date: 1/15/2013

Wastewater Treatment Facility Emissions: Direct

	Wastewater volume flow (MGD) ¹	Number of Plants ¹	Population ²	CO ₂ e (Metric Tons) ²			
				CO ₂	CH ₄	N ₂ O	Total CO ₂ e ³
New York State²	3,693.65	610	19,378,102	-	1,310,000	580,000	1,900,000
Mohawk Valley²	121.15	38	500,155	-	30,000	10,000	50,000
Fulton	13.45	4	55,531		3,330	1,110	5,551
Herkimer	16.25	5	64,519		4,024	1,341	6,706
Montgomery	16.41	5	50,219		4,063	1,354	6,772
Oneida	67.21	15	234,878		16,642	5,547	27,737
Otsego	5.120	3	62,259		1,268	423	2,113
Scholarie	2.716	6	32,749		673	224	1,121

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

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

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

⁴County 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:

MV Waste_water11_27.xlsx

Date: 11/27/2012

Manure Management Emissions

	Population (# of animals) ¹	Number of Animal Farms ₁	CO ₂ e (Metric Tons) ²			
			CO ₂	CH ₄	N ₂ O	Total CO ₂ e
New York State						
Mohawk Valley	181,370	4,607		46,590	9,659	56,250
Fulton	6,012	245		1,459	296	1,756
Herkimer	39,688	836		10,112	2,108	12,219
Montgomery	42,130	711		9,869	2,035	11,904
Oneida	40,099	1,060		12,272	2,579	14,852
Otsego	34,331	1,113		8,367	1,724	10,090
Schoharie	19,110	642		4,512	917	5,429

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 Greenhouse Gas Inventories .

Enteric Fermentation Emissions

	Population (# of animals) ¹	Number of Animal Farms ₁	CO ₂ e (Metric Tons) ²			
			CO ₂	CH ₄	N ₂ O	Total CO ₂ e
New York State						
Mohawk Valley	181,370	4,607		215,881		215,881
Fulton	6,012	245		9,601		9,601
Herkimer	39,688	836		60,782		60,782
Montgomery	42,130	711		62,857		62,857
Oneida	40,099	1,060		531		531
Otsego	34,331	1,113		52,359		52,359
Schoharie	19,110	642		29,750		29,750

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

	Cropland Harvested (acres) ¹	CO ₂ e (Metric Tons) ²			
		CO ₂	CH ₄	N ₂ O	Total CO ₂ e
New York State					
Mohawk Valley	353,530			21,599	21,599
Fulton	15,722			960	960
Herkimer	64,172			3,919	3,919
Montgomery	70,982			4,335	4,335
Oneida	87,040			5,324	5,324
Otsego	70,653			4,315	4,315
Schoharie	44,961			2,746	2,746

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 Commercial Fertilizer Purchased

Supporting data and calculations are provided in the following E&E Excel Workbook:
File Name:
MV_Agriculture102512.xlsx
Date:
10/25/12

Carbon Sequestration in Forests

	Forest Land (Acres) ¹	Forest Land (km ²)	Total Carbon Sequestration (metric tons C) ²	Total Carbon Sequestration (metric tons CO ₂)
New York State				
Mohawk Valley	2,196,666	8,890	112,125,020	411,498,822
Fulton	288,843	1,169	15,179,560	55,708,984
Herkimer	735,009	2,974	38,844,366	142,558,823
Montgomery	71,530	289	3,374,087	12,382,900
Oneida	447,465	1,811	22,170,562	81,365,961
Otsego	404,866	1,638	19,972,797	73,300,164
Schohaire	248,953	1,007	12,583,648	46,181,989

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 (km ²) ¹	Tree Canopy Cover (%) ²	Total Carbon Sequestration (metric tons C) ³	Total Carbon Sequestration (metric tons CO ₂)
New York State				
Mohawk Valley	332		24,116	88,507
Fulton	37	44%	3,559	13,062
Herkimer	41	34%	3,074	11,283
Montgomery	38	35%	2,958	10,856
Oneida	190	29%	12,446	45,676
Otsego	18	40%	1,624	5,959
Schohaire	8	26%	456	1,672

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:
MR_Forest_102512.xlsx
Date:
10/25/12