



# WNY Regional Sustainability Plan



# WNY Regional Sustainability Plan

- **Planning Goals** set for:

- Energy
- Land Use
- Transportation
- Agriculture and Forestry
- Water Resources
- Waste Management



- **Strategies** were developed for each goal.
- **Sustainability Indicators** chosen to establish a baseline and as a tool to measure progress toward achieving goals.
- Measurable **Targets** were set for selected some indicators in each focus area.
- WNY Regional Sustainability Plan can be found at:  
<http://www.nyserda.ny.gov/Governor-Initiatives/Cleaner-Greener-Communities/Regional-Sustainability-Plans.aspx>

# Energy

## ENERGY

Year: 2010

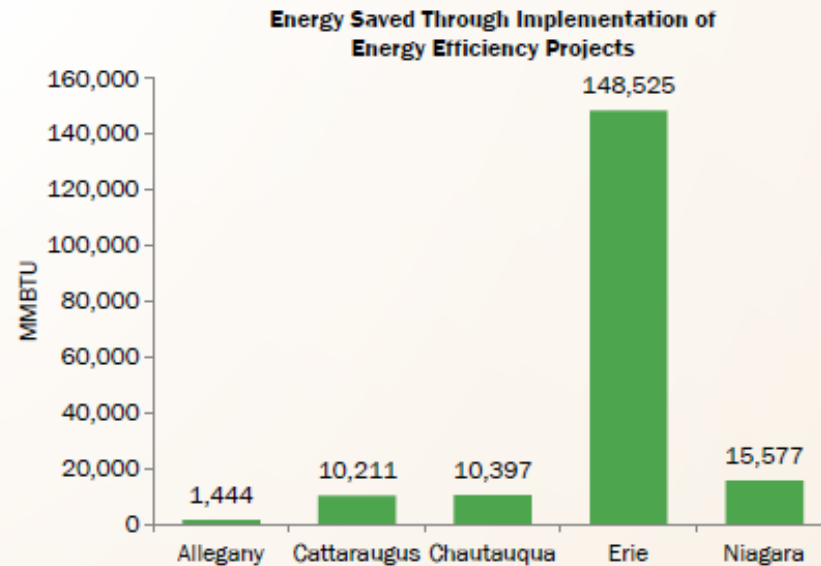
Energy efficiency projects saved **186,154 MMBtu** in WNY in 2010

### Data Sources

New York State Energy Research and Development Authority. (2012).

## Energy Savings Realized Through Energy Efficiency Projects

### A more in-depth look



**Target:** Increase the implementation of NYSERDA-funded energy efficiency projects by 34%, or to 250,000 MMBtu by 2015.

# Energy

## ENERGY

Year: 2011

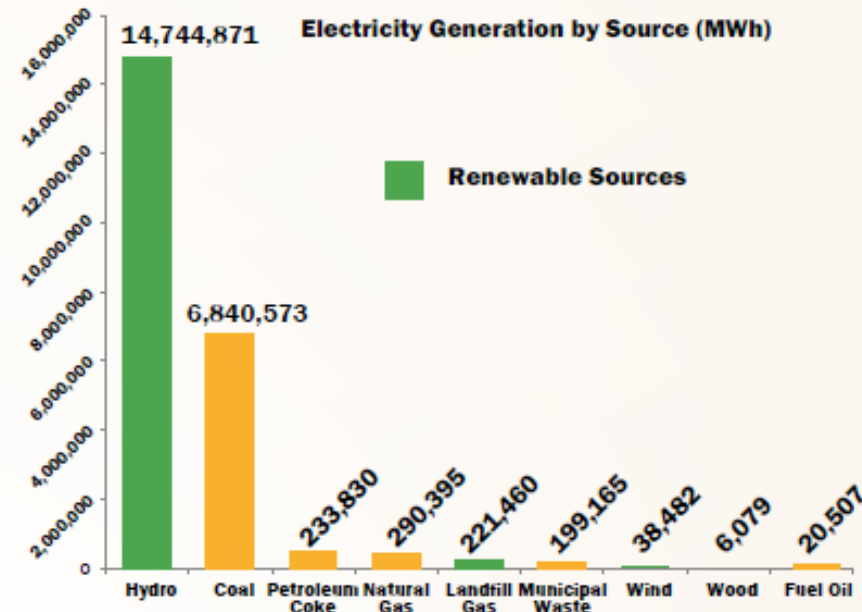
Renewable sources have generated **15,010,892 MWh, or 66% of electricity** in WNY

### Data Sources

U.S. Energy Information Administration, Department of Energy. (2012). *Reporting programs (Form 923) for all electricity generators.*

## Electricity Generated from Renewable Sources

### A more in-depth look



**Target:** Increase renewable energy generation to 75% by 2025.

# Transportation

## TRANSPORTATION

Year: 2009

For each person in WNY, our vehicles travel **9,043 miles** per year

### Data Sources

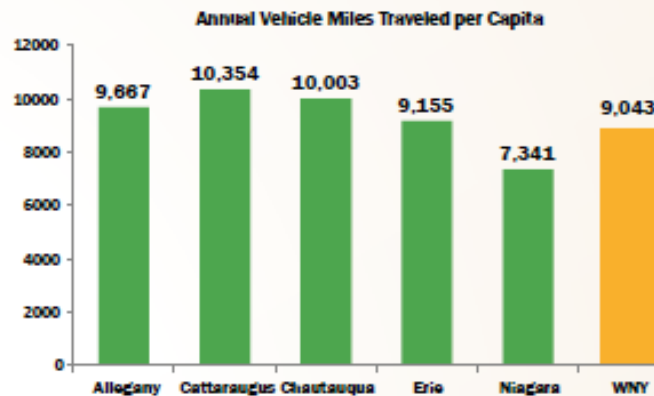
N.Y. Department of Transportation. 2009. Vehicle Miles Traveled data in Cattaraugus, Chautauqua and Allegany County.

Greater Buffalo Niagara Regional Transportation Council. 2009. Vehicle Miles Traveled data in Erie and Niagara County.

U.S. Census Bureau. 2010. Summary File 1: New York State, Total Population by County.

## Vehicle Miles Traveled Per Capita

### A more in-depth look



## TRANSPORTATION

Year: 2010

**15.8%** of workers in WNY commute to work by walking, biking, public transportation or carpool

### Data Sources

U.S. Census Bureau. 2010. American Community Survey 2010 1-year estimates: Means of transportation to work for workers in Erie, Cattaraugus, and Chautauqua County.

U.S. Census Bureau. 2010. American Community Survey 2008 - 2010 3-year estimates: Means of transportation to work for workers in Niagara and Allegany County.

## Workers Commuting Via Alternative Transportation Modes

### A more in-depth look



**Target:** Reduce vehicle miles traveled (VMTs) by 3% through 2020.



# Water Resources

## WATER MANAGEMENT

Year: 2005

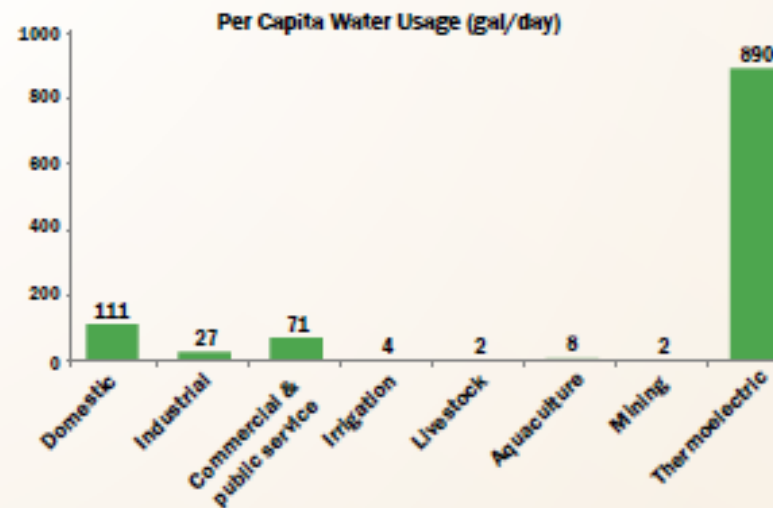
WNY's residents and  
businesses use  
**1,116 gallons**  
per day, per person

### Data Sources

U.S. Geological Survey, 2005.  
*Estimated Use of Water in the United  
States County-Level Data.*

## Water Usage Per Capita

### A more in-depth look



No Target identified

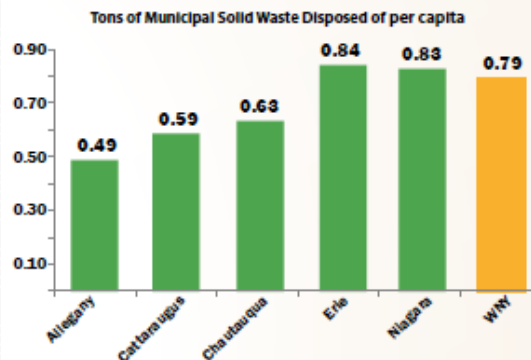
# Waste Management

## WASTE MANAGEMENT Year: 2010

### Municipal Solid Waste (MSW) Disposed of Per Capita

In 2010, **0.79 tons** per person of municipal solid waste from WNY were disposed of

#### A more in-depth look



**Data Sources**  
 NYSDC. 2010. Annual landfill reports and municipal waste combustion reports submitted for key facilities.  
 U.S. Census Bureau. 2010. Summary File 1: New York State, Total Population by County.

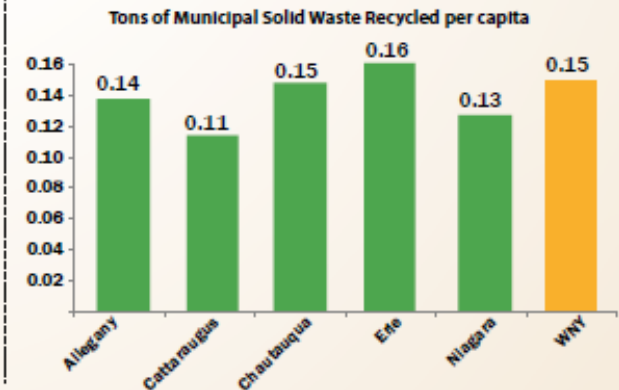
**Target:** Reduce municipal solid waste (MSW) disposal to 0.11 tons per person per year (0.6 pounds per person per day) by 2030.

## WASTE MANAGEMENT Year: 2010

### Municipal Solid Waste (MSW) Recycled Per Capita

In 2010, **0.15 tons** per person of municipal solid waste from WNY were recycled

#### A more in-depth look



**Data Sources**  
 NYSDC. 2010. Annual recyclable handling and recovery facility reports submitted for key facilities.  
 U.S. Census Bureau. 2010. Summary File 1: New York State, Total Population by County.

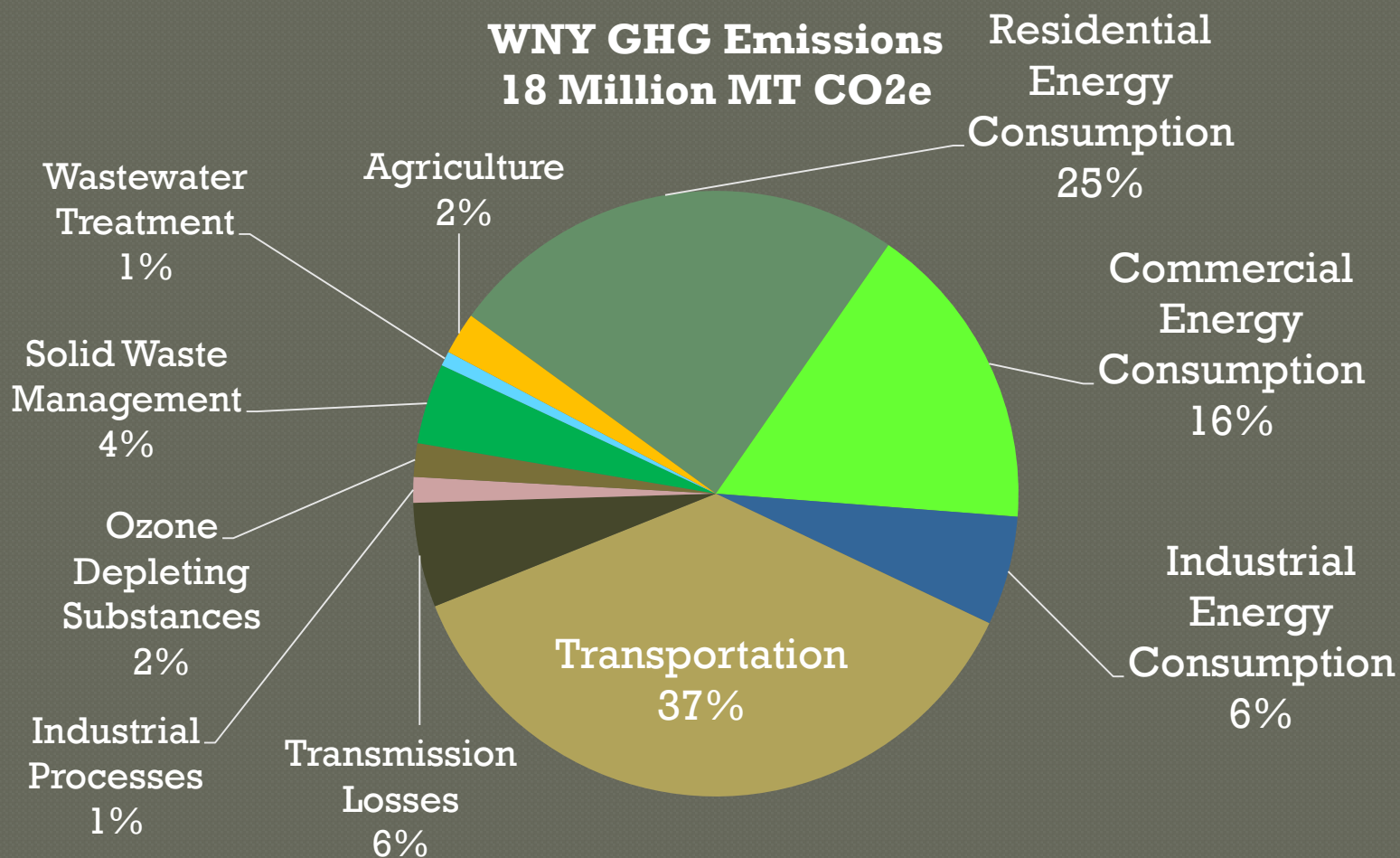


# WNY Regional GHG Inventory Results





# WNY Regional GHG Inventory: Results



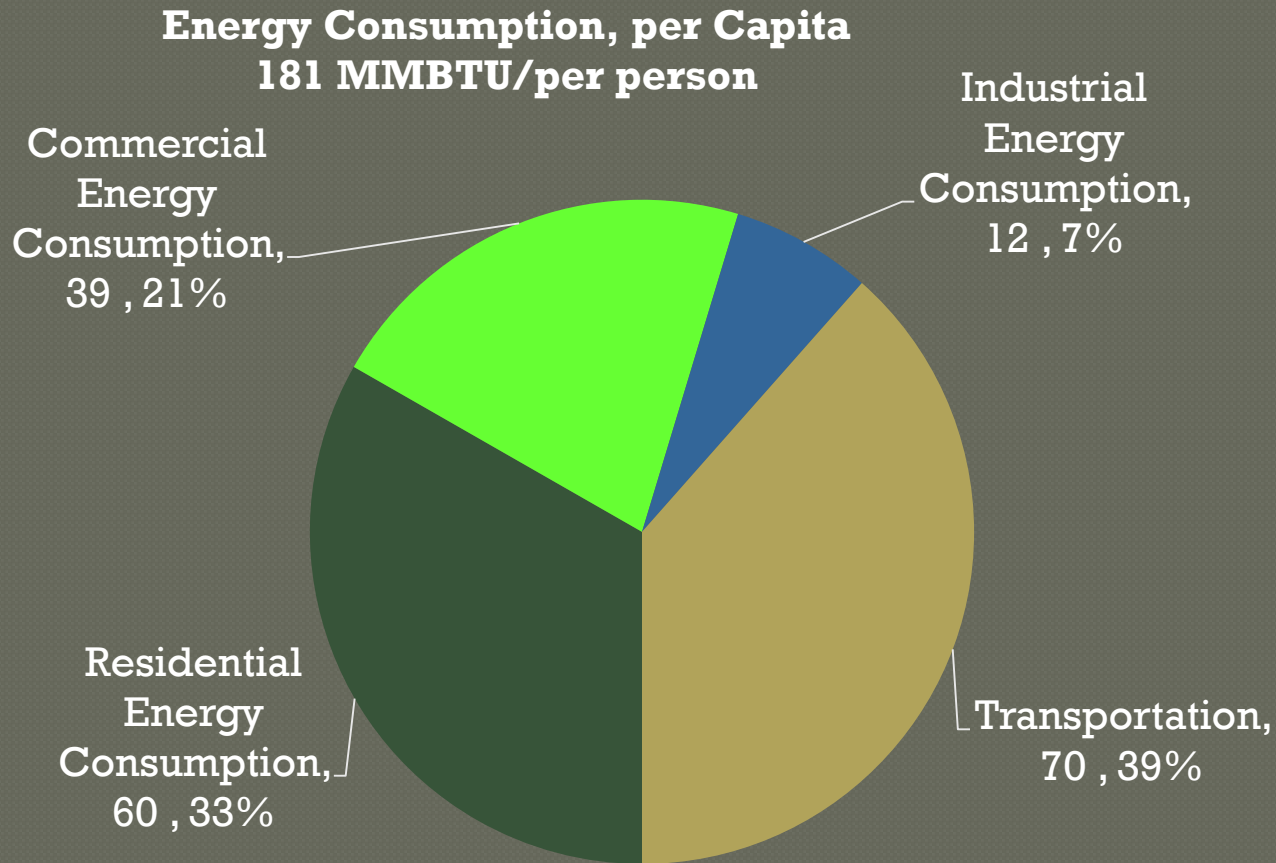
*Does not include Electricity Generation or Forest/urban tree sinks*

# WNY Regional GHG Inventory: Results

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- GHG Emissions per Capita: 12.8 MTCO<sub>2</sub>e
  - Total Emissions: 17.9 Million MT CO<sub>2</sub>e
- Energy Consumption/person: 181 MMBTU
  - Total Energy Consumption: 254,028,790 MMBTU
  - Total Population: 1,399,677
- Transportation VMT per Capita: 9,043 miles
  - Total Transportation VMTs: 12,657,221,755 miles

# Sustainability Indicator 1A: Regional Energy Use per Capita

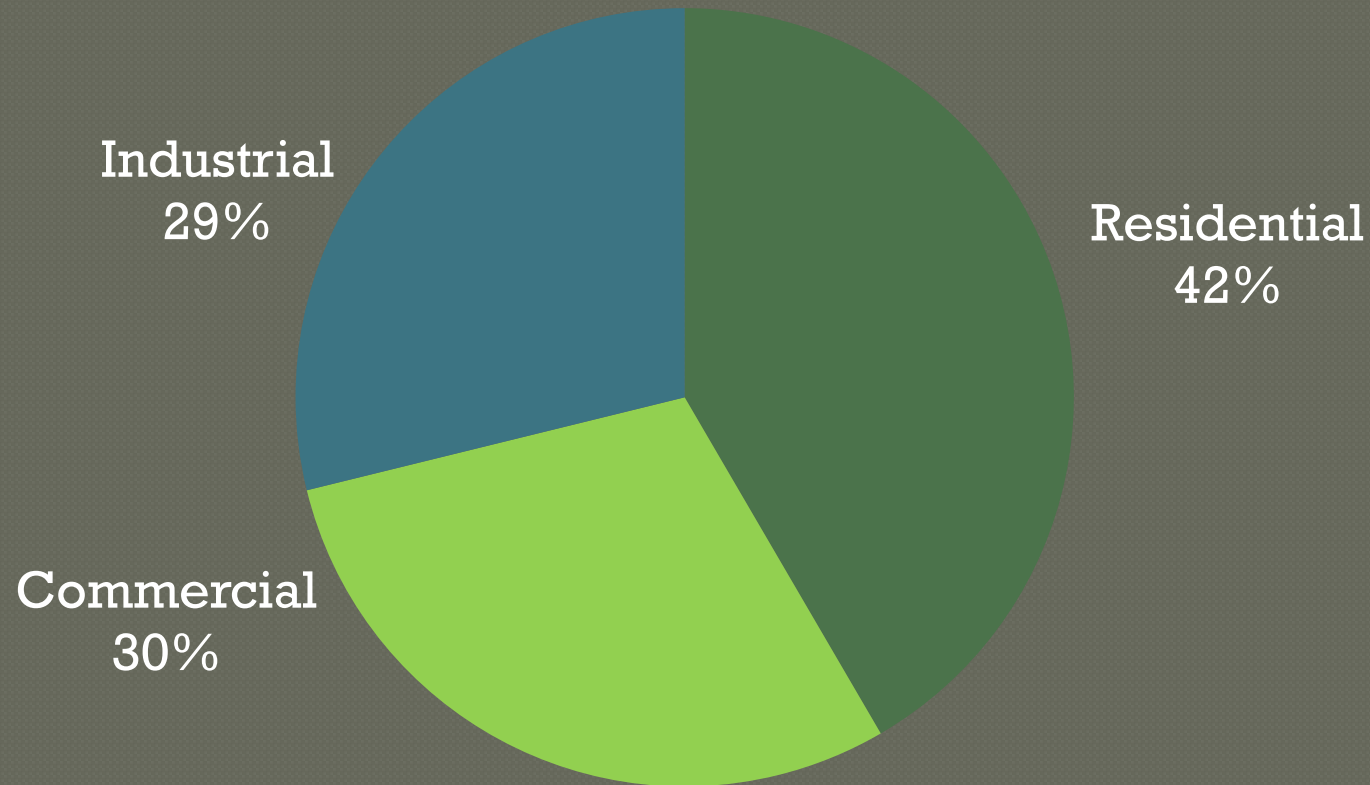


*Includes Transportation and Electricity Consumption, not Electricity Generation*

# WNY Electricity Consumption

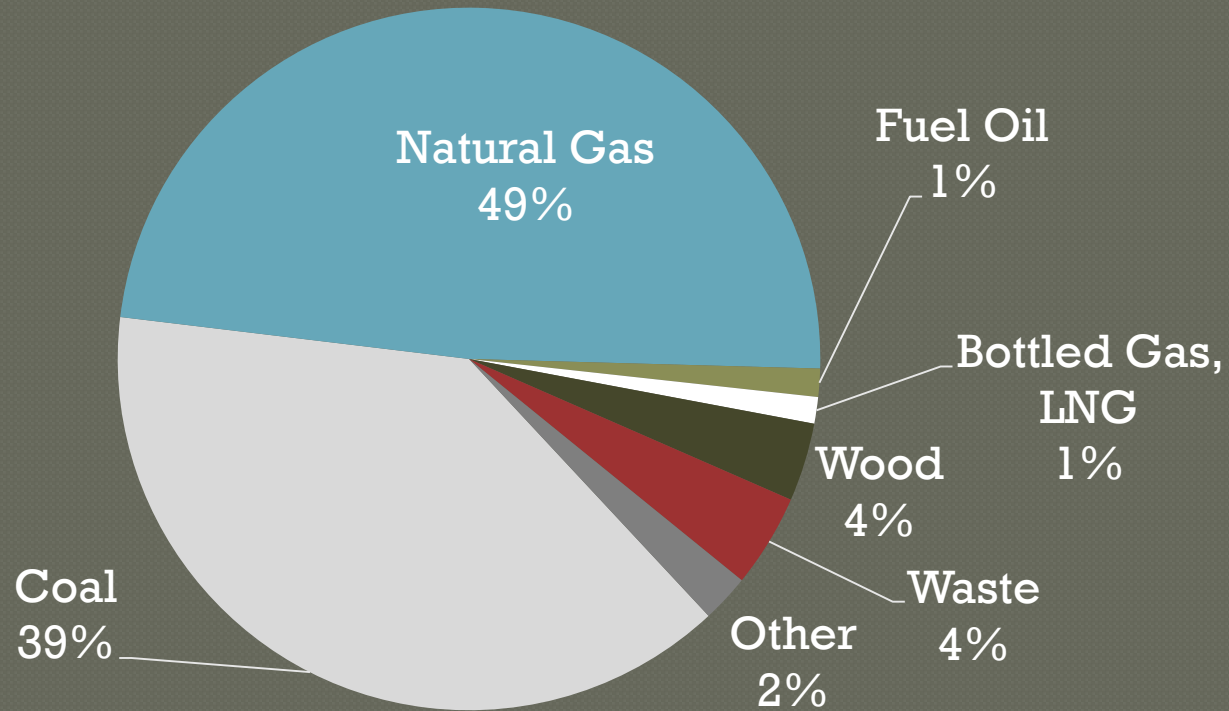
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## Electricity Consumption in WNY 9 Million MWh



# Energy Use (MMBTU) by Fuel Type

**Energy (MMBTU) by Fuel Type**



*Includes Electricity Generation, does not include Transportation*



# NY eGRID GHG Emission Factors for Electricity Consumption

|                                      | CO <sub>2</sub> lbs/MWh   |  |   |
|--------------------------------------|---|--|---|
|                                      | Year 2009<br>(eGRID 2012)<br>Total output<br>emission rates<br>(used in WNY<br>inventory) | Year 2010<br>(eGRID 2014)<br>Total output<br>emission<br>rates | Year 2010<br>(eGRID 2014)<br>Non-baseload<br>output<br>emission rates |
| eGRID2012, NYUP<br>(All Upstate NY)  | 497.92  | 545.79   | 1253.77   |
| eGRID2012, NYCW<br>(NYC/Westchester) | 610.67  | 622.42   | 1131.63   |
| eGRID2012, NYLI<br>(Long Island)     | 1347.99   | 1336.11  | 1445.94   |

Source: <http://www.epa.gov/cleanenergy/energy-resources/egrid/>

# GHG Emission Factors for Direct Energy Consumption

| <b>Emission Factors*</b>                   |                             |                                     |                                     |                                     |
|--|-----------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| <b>Petroleum Products</b>                  |                             |                                     |                                     |                                     |
| <b>Fuel Type</b>                           | <b>mmBtu/<br/>gallon</b>    | <b>kg CO<sub>2</sub>/<br/>mmBtu</b> | <b>kg CH<sub>4</sub>/<br/>mmBtu</b> | <b>kg N<sub>2</sub>O/<br/>mmBtu</b> |
| Distillate Fuel Oil No. 2<br>(Heating Oil) | 0.138                       | 73.96                               | 0.003                               | 0.0006                              |
| Liquefied Petroleum<br>Gases (LPG)         | 0.092                       | 62.98                               | 0.003                               | 0.0006                              |
| <b>Coal and Coke</b>                       |                             |                                     |                                     |                                     |
| <b>Fuel type</b>                           | <b>mmBtu/<br/>short ton</b> | <b>kg CO<sub>2</sub>/<br/>mmBtu</b> | <b>kg CH<sub>4</sub>/<br/>mmBtu</b> | <b>kg N<sub>2</sub>O/<br/>mmBtu</b> |
| Coke                                       | 24.8                        | 102.04                              | 0.011                               | 0.0016                              |
| <b>Natural Gas</b>                         |                             |                                     |                                     |                                     |
| <b>Fuel Type</b>                           | <b>mmBtu/<br/>scf</b>       | <b>kg CO<sub>2</sub>/<br/>mmBtu</b> | <b>kg CH<sub>4</sub>/<br/>mmBtu</b> | <b>kg N<sub>2</sub>O/<br/>mmBtu</b> |
| Pipeline(US Weighted<br>Ave)               | 0.001028                    | 53.02                               | 0.001                               | 0.0001                              |

\*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>

# Global Warming Potential: converting to CO<sub>2</sub>e

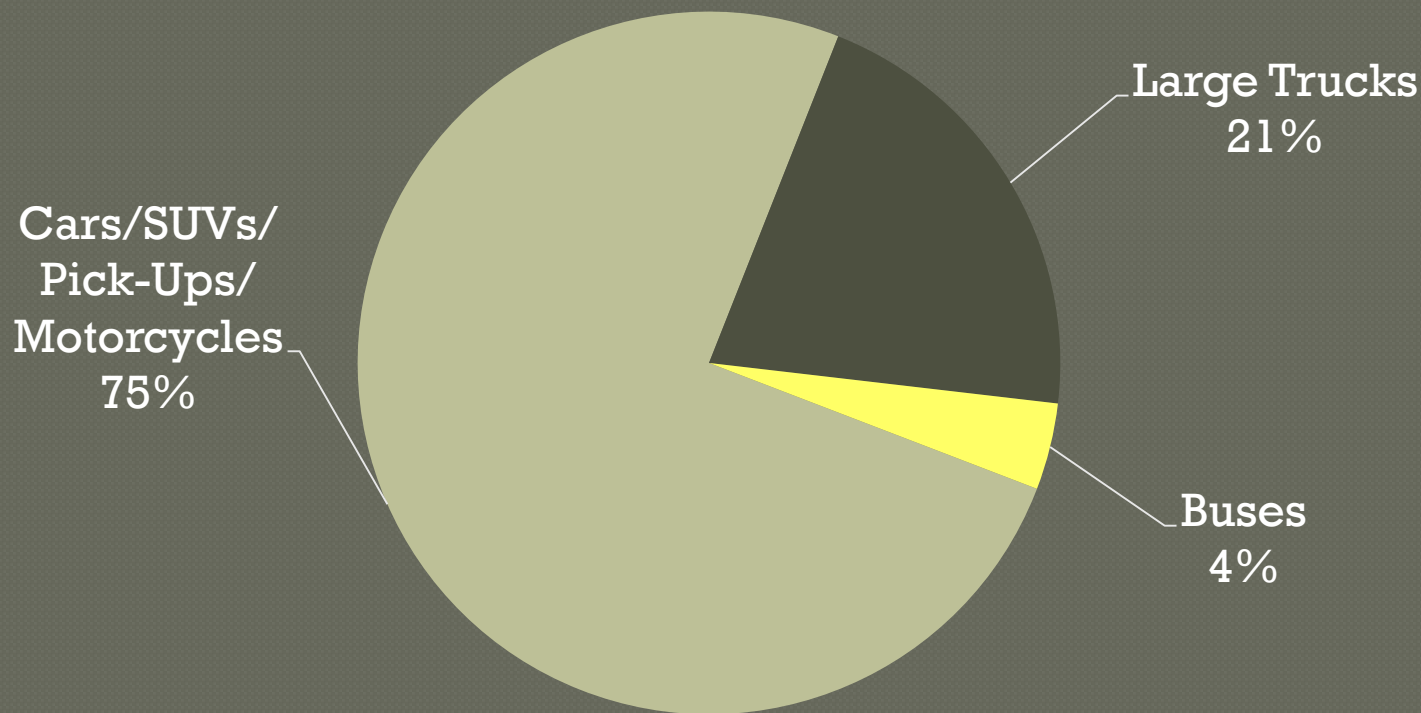
| Global Warming Potential **       |                                 |
|-----------------------------------|---------------------------------|
| Emissions                         | 100-yr Global Warming Potential |
| Carbon dioxide (CO <sub>2</sub> ) | 1                               |
| Methane (CH <sub>4</sub> )        | 21                              |
| Nitrous oxide (N <sub>2</sub> O)  | 310                             |

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

# Western NY GHG Inventory – On Road Vehicles

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## WNY GHG Emissions from On-Road Vehicles



# Vehicle GHG Emissions Calculations

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| Vehicle Usage<br>emission factors/ assumptions          |         |
|---|---------|
| GHG per gallon of gasoline (MTCO <sub>2</sub> e)        | 0.00889 |
| GHG per gallon of diesel (MTCO <sub>2</sub> e)          | 0.01018 |
| Average miles per gallon (mpg) of<br>passenger vehicles | 21.6    |

Source: <http://www.epa.gov/otaq/climate/documents/420f14040.pdf>





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### Greenhouse Gas Equivalencies Calculator

Did you ever wonder what reducing carbon dioxide (CO<sub>2</sub>) emissions by 1 million metric tons means in everyday terms? The greenhouse gas equivalencies calculator can help you understand just that, translating abstract measurements into concrete terms you can understand, such as "equivalent to avoiding the carbon dioxide emissions of 183,000 cars annually."

This calculator may be useful in communicating your greenhouse gas reduction strategy, reduction targets, or other initiatives aimed at reducing greenhouse gas emissions.

#### Enter Your Data

There are two options for entering reduction data into this calculator.

**If You Have Energy Data**

**If You Have Emissions Data**

Please note that these estimates are approximate and should not be used for emission inventory or formal carbon footprinting exercises. Read more about the caveats and explanations on the [Calculations and References page](#)



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