



# 2014 GREENHOUSE GAS EMISSIONS AND ENERGY USE INVENTORY

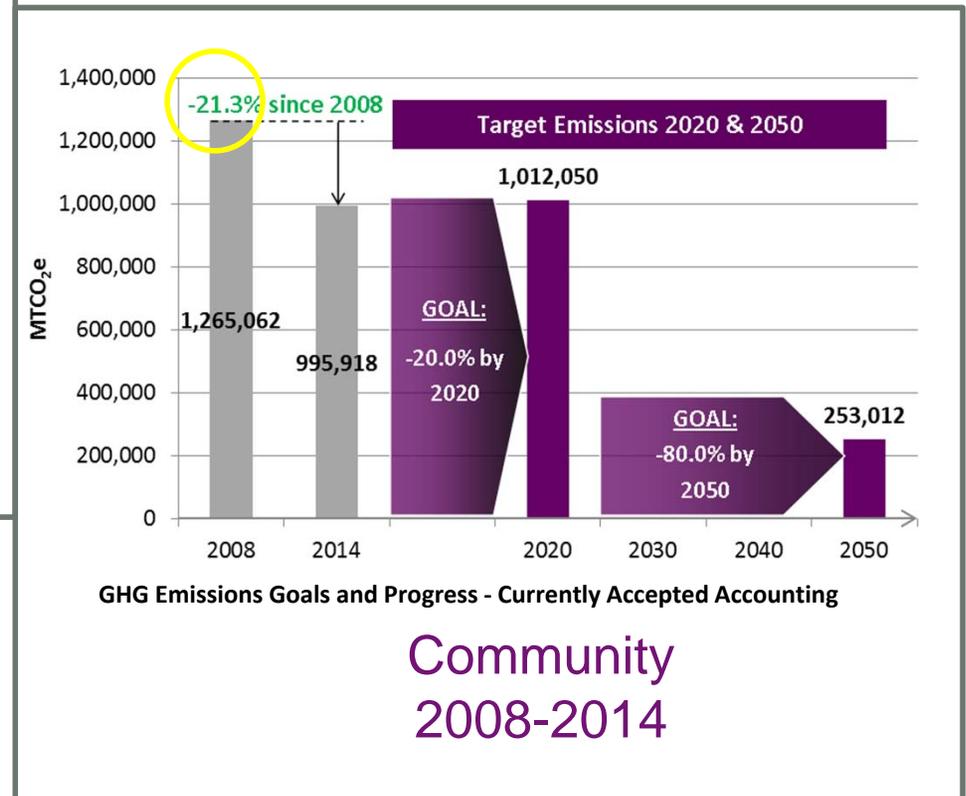
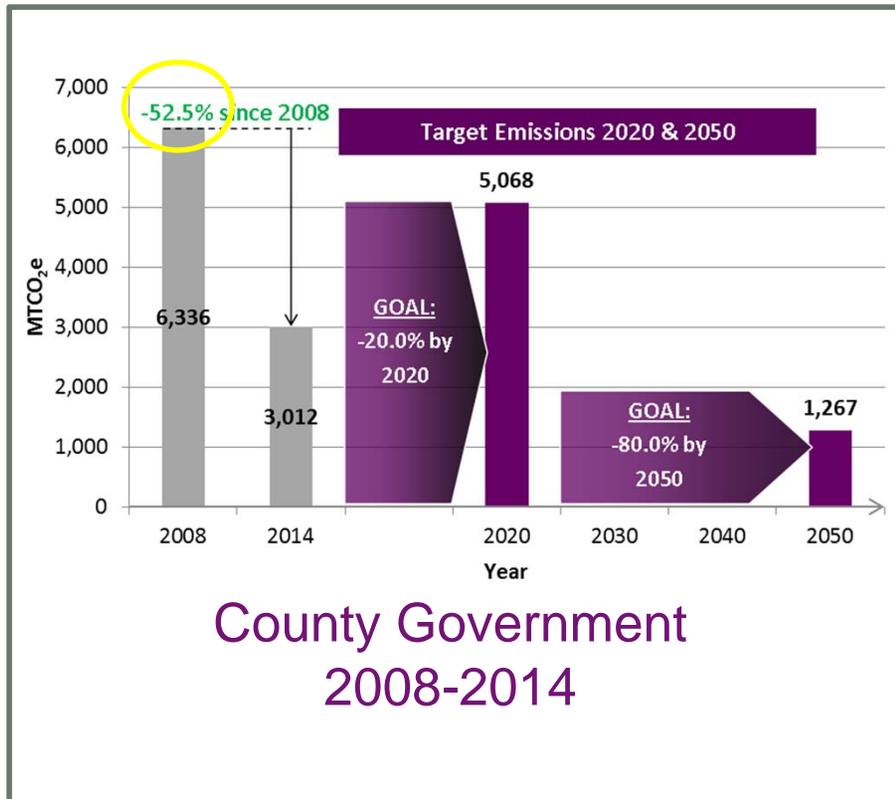
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Tompkins County Planning Department

# Purpose

- Accounting of GHGs emitted to atmosphere – began in 1998
- Analysis added for 2014:
  - Detailed accounting of energy consumed
  - Tracking of renewable energy resources
  - Tracking new climate science and implications for actions
  - Tracking renewable energy certificates for government
  - Facility by facility energy use and costs for government
  - Detailed fleet inventory for government

# Excellent Progress!

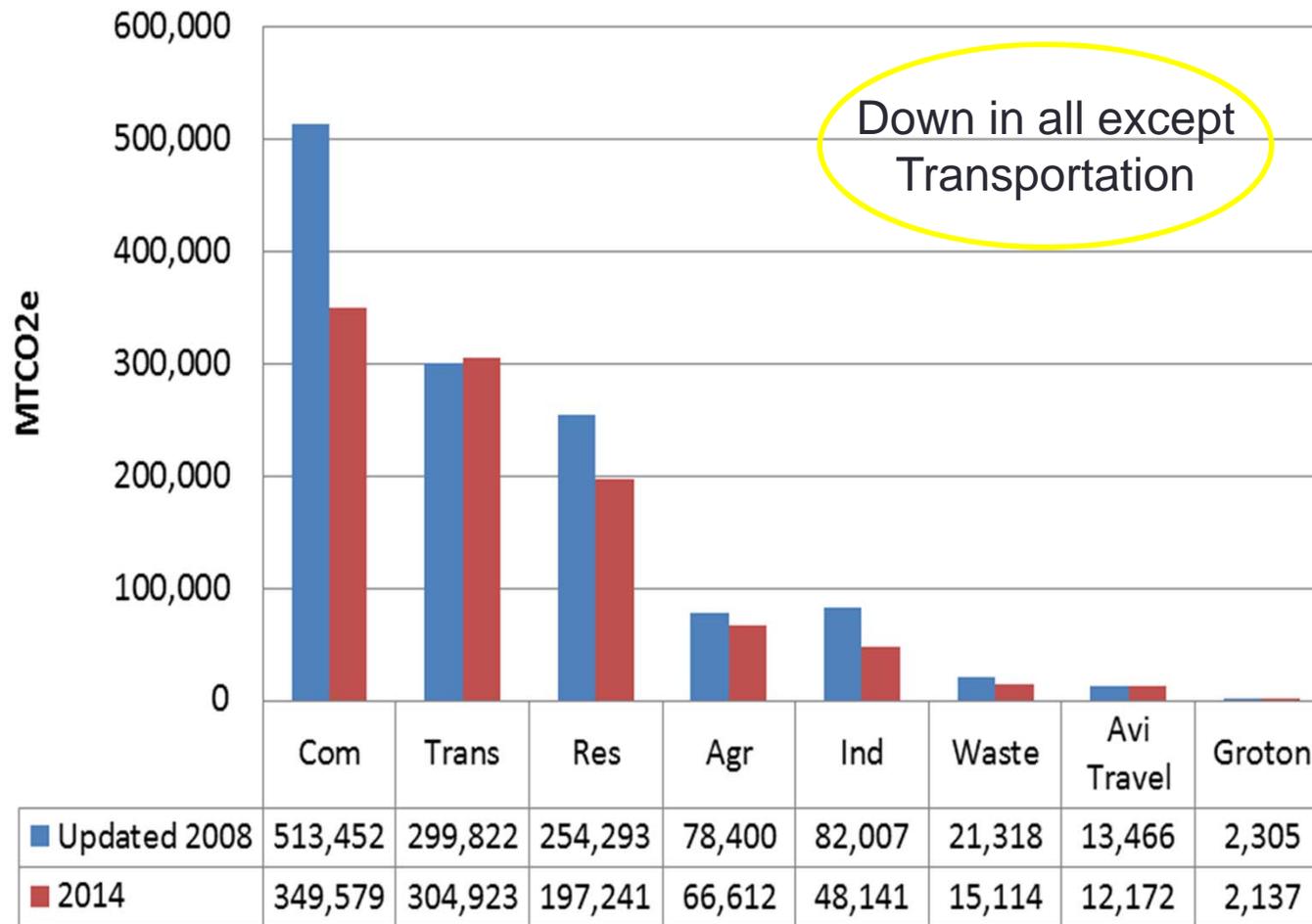


But there are other considerations

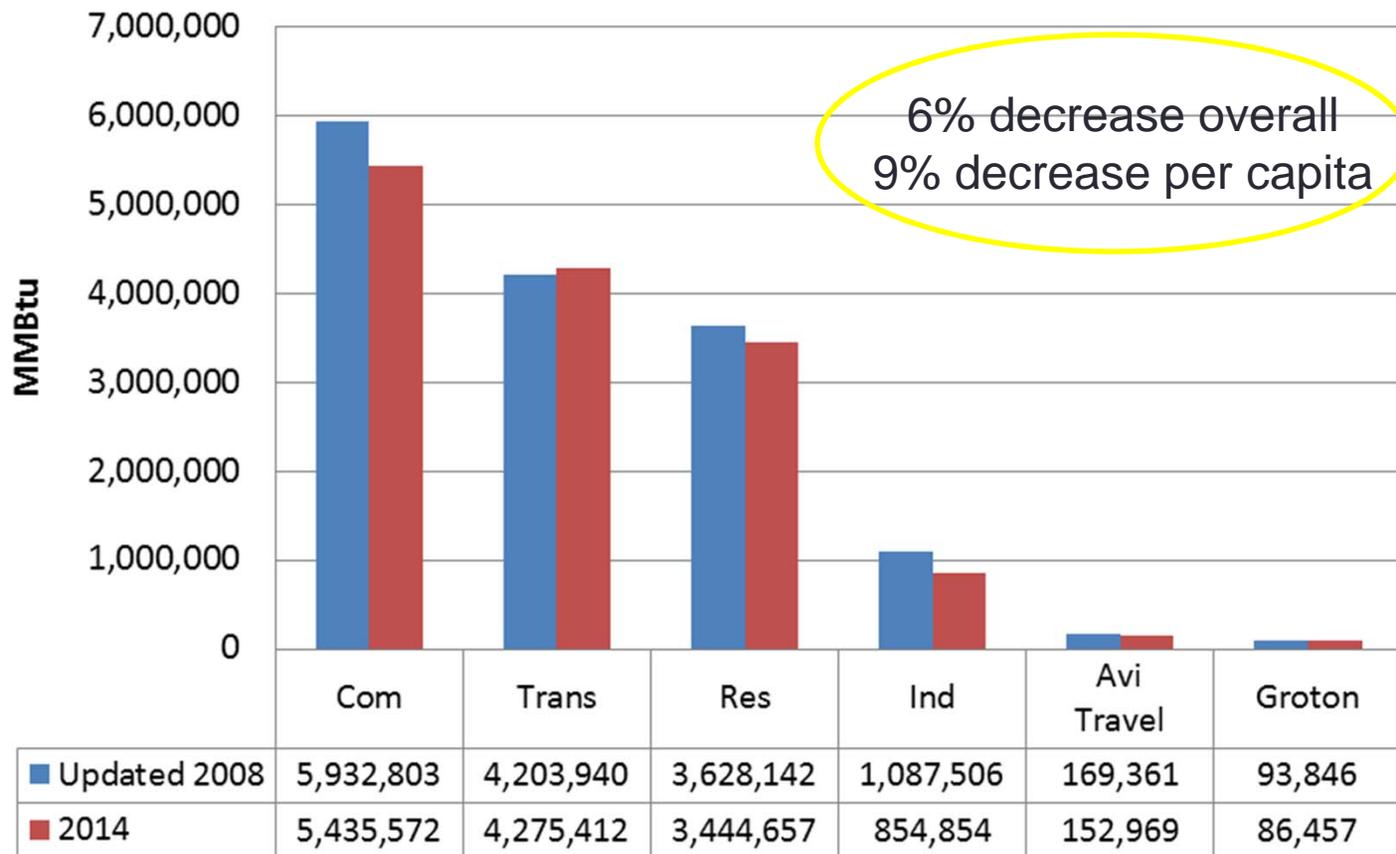


# **Tompkins County Community**

# 2008-2014 Community Emissions



# 2008-2014 Community Energy Use



# Growth of Renewables

136% increase overall

| kWh                             | Updated 2008 | 2014      | % Change |
|---------------------------------|--------------|-----------|----------|
| <b>Solar</b>                    | 474,311      | 4,043,323 | 752.5%   |
| <b>Small-Scale</b>              | 474,311      | 3,382,993 | 613.2%   |
| <b>Large- and Utility-Scale</b> | 0            | 660,330   | NA       |
| <b>Hydro – Large-Scale</b>      | 3,100,000    | 4,400,000 | 41.9%    |
| <b>Micro-hydro</b>              | 0            | 0         | NA       |
| <b>Wind</b>                     | 0            | 0         | NA       |

# Reasons for Progress - Community

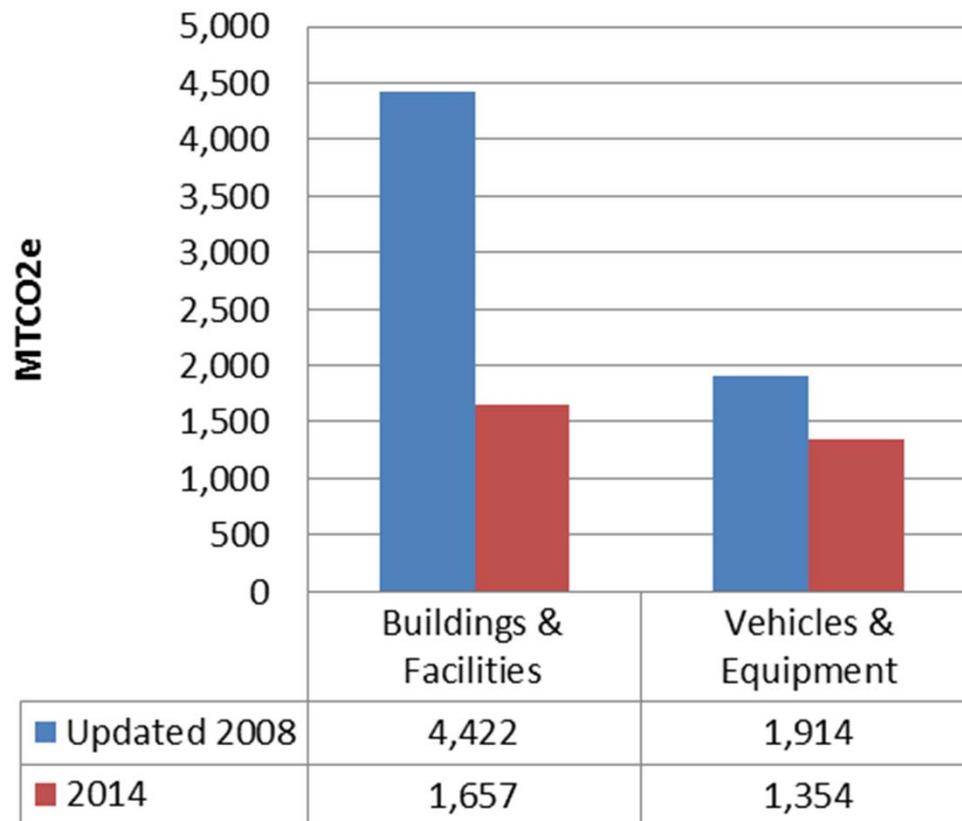
- Less energy consumption (except for transportation)
- Cornell converted from coal to natural gas
- Growth of renewables
- Changes to electric grid: Accounts for 11% of the 21% reduction

| Inventory Year<br>Fuel Mix of Upstate NY in Percent | 2008 (%) | 2014 (%) | Percent<br>Change |
|---|----------|----------|-------------------|
| Natural Gas   | 15.5     | 30.4     | 96%               |
| Hydro   | 26.4     | 29.2     | 11%               |
| Nuclear   | 27.0     | 28.9     | 7%                |
| Coal  | 21.5     | 5.5      | -74%              |
| Wind  | 0.1      | 3.6      | 3,500%            |
| Biomass   | 1.2      | 1.8      | 50%               |
| Other Fossil  | 0.4      | 0.4      | 0%                |
| Oil   | 7.8      | 0.2      | -97%              |
| Solar   | 0.0      | 0.0      | 0%                |
| Geothermal  | 0.0      | 0.0      | 0%                |
| Other Unknown/Purchased Fuel                        | 0.0      | 0.0      | 0%                |



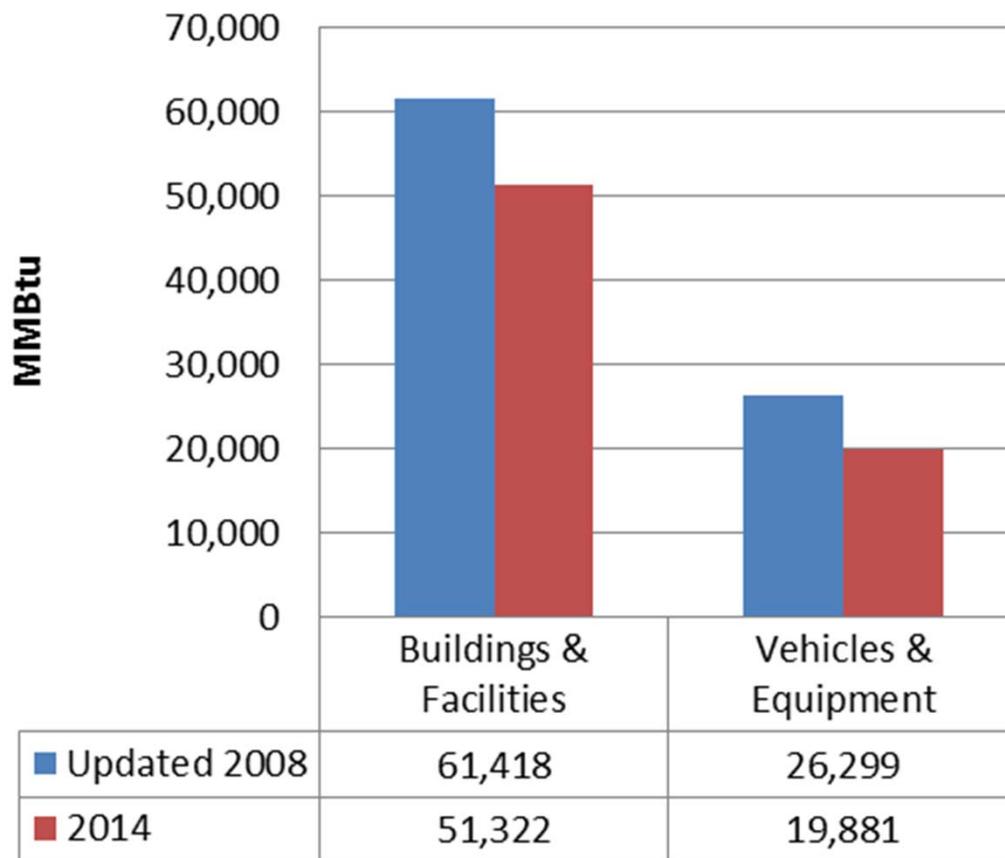
# **Tompkins County Government Facilities and Operations**

# 2008-2014 Government Emissions



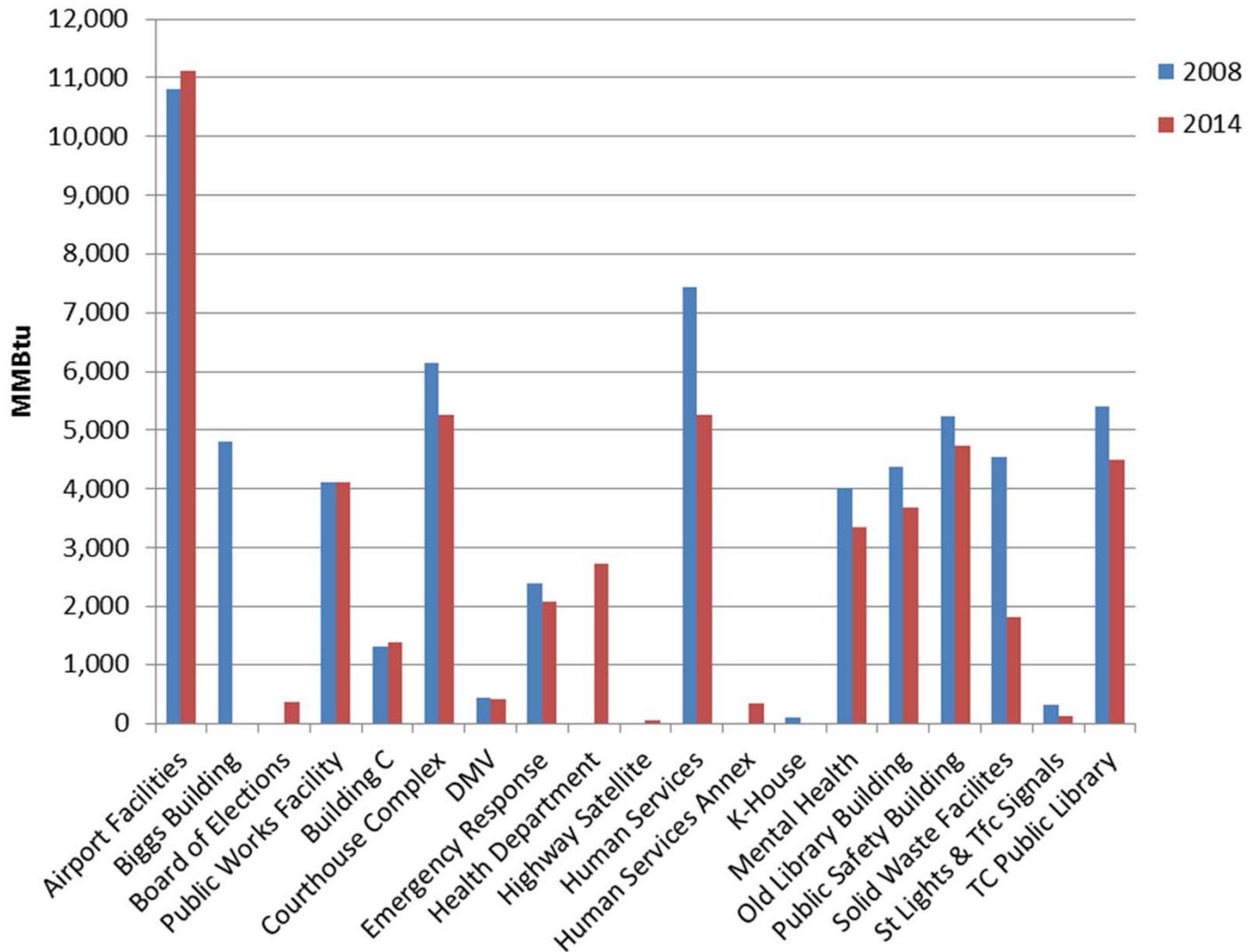
52.5% decrease

# 2008-2014 Government Energy Use



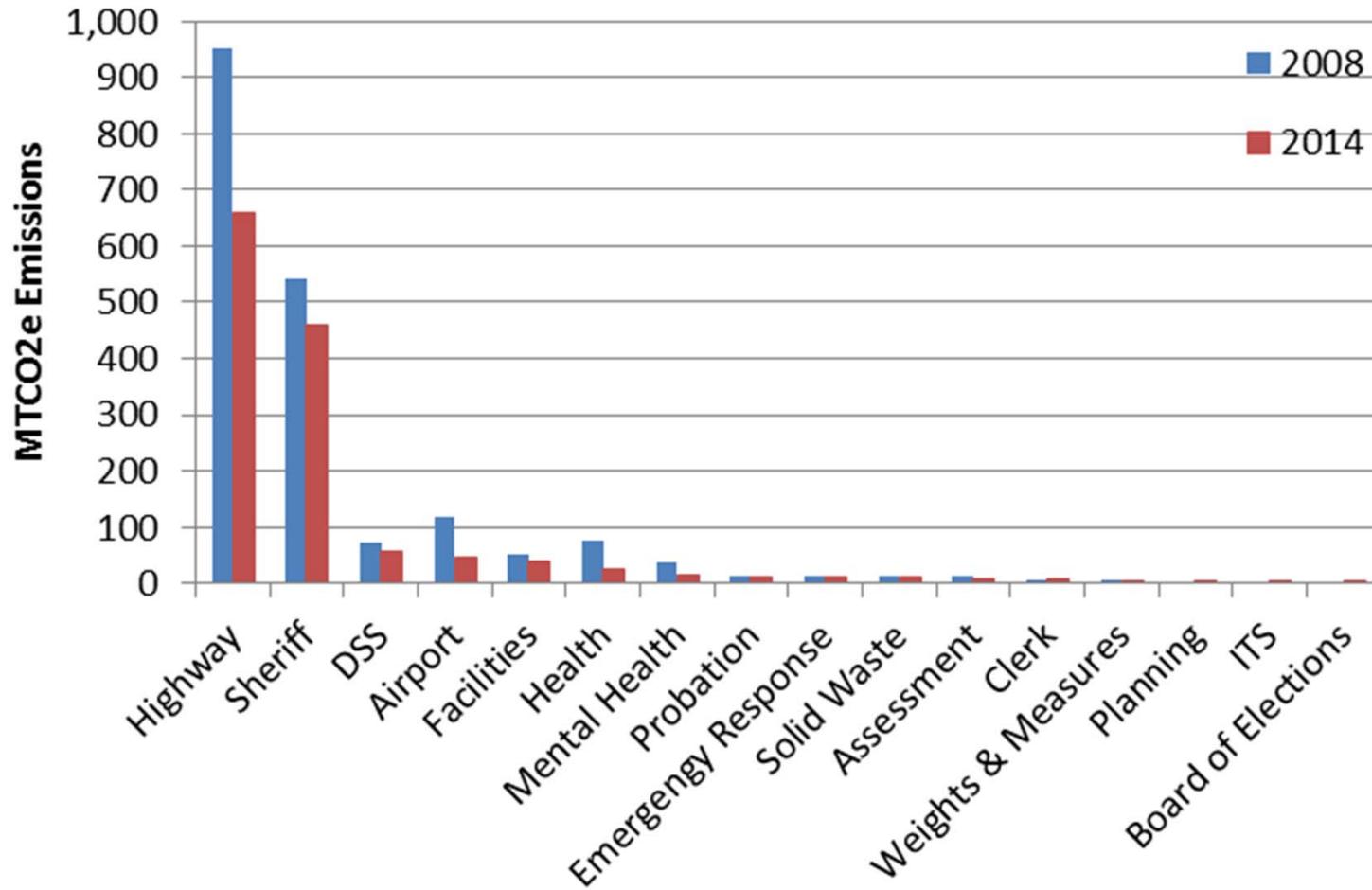
# Buildings - Energy Use

16% decrease

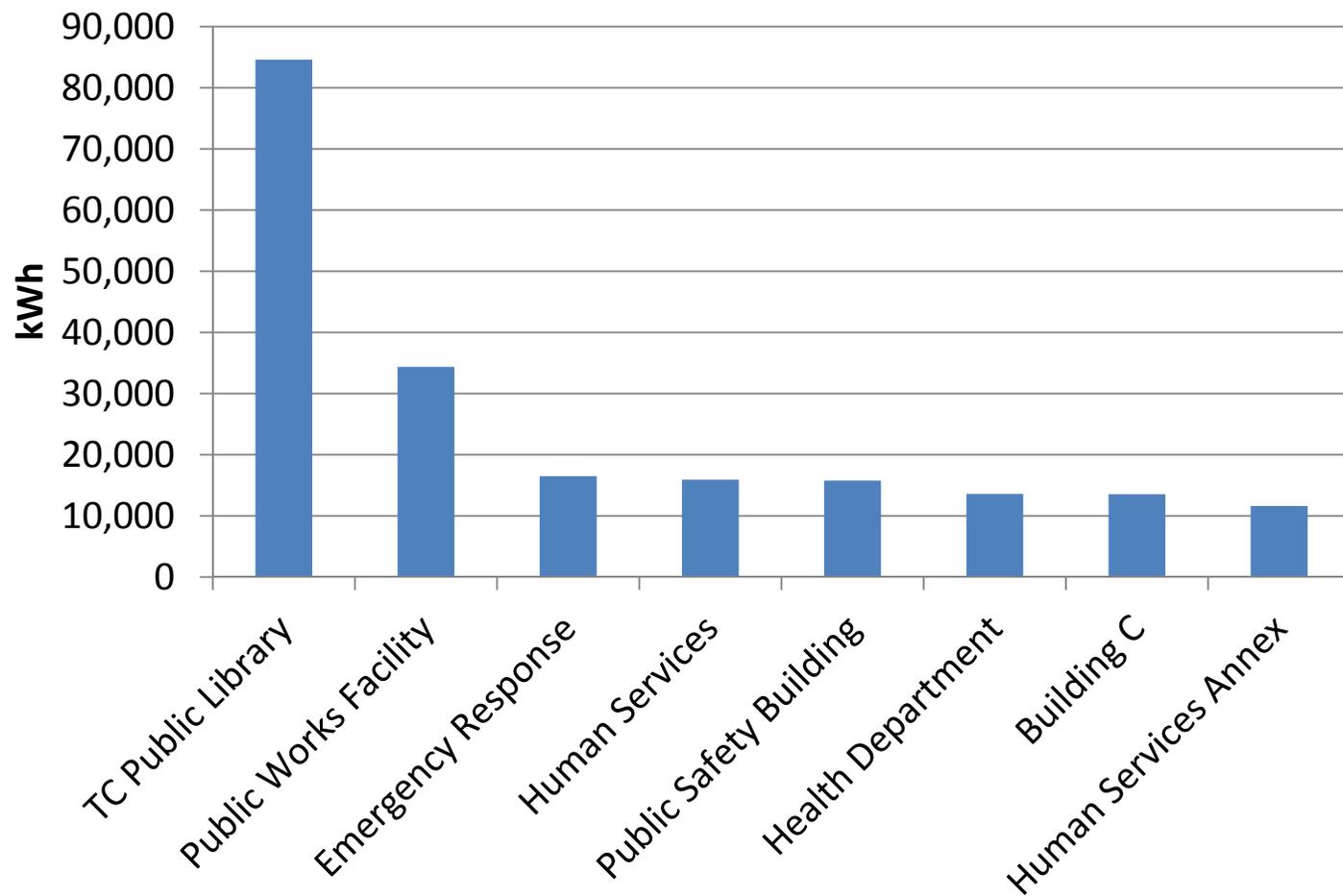


# Fleet - Emissions

30% decrease



# Solar Electricity at County Facilities 2014



# Reasons for Progress - Government

- **Buildings**
  - Purchase of Renewable Energy Certificates (RECs)
  - Changing Electric Grid
  - Energy Performance Contract (Johnson Controls)
  - Occupancy and behavior
- **Fleet**
  - Biodiesel
  - Green fleet policy
  - Improving CAFE standards for newer vehicles
  - Changes in vehicle use

# How to Account for Use of Fracked Gas?

## **1) Nearly All Natural Gas Consumed Now from Shale Gas**

- Methane is primary component of natural gas

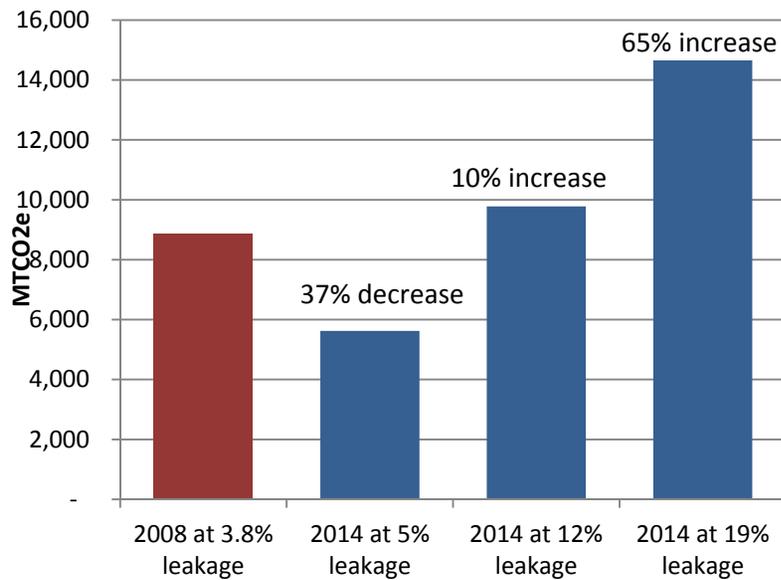
## **2) Research – Significant Methane Leaks from Fracked Shale**

- Leakage of pure methane from production and distribution range from 5-19% of total produced

## **3) Global Warming Potential of Methane**

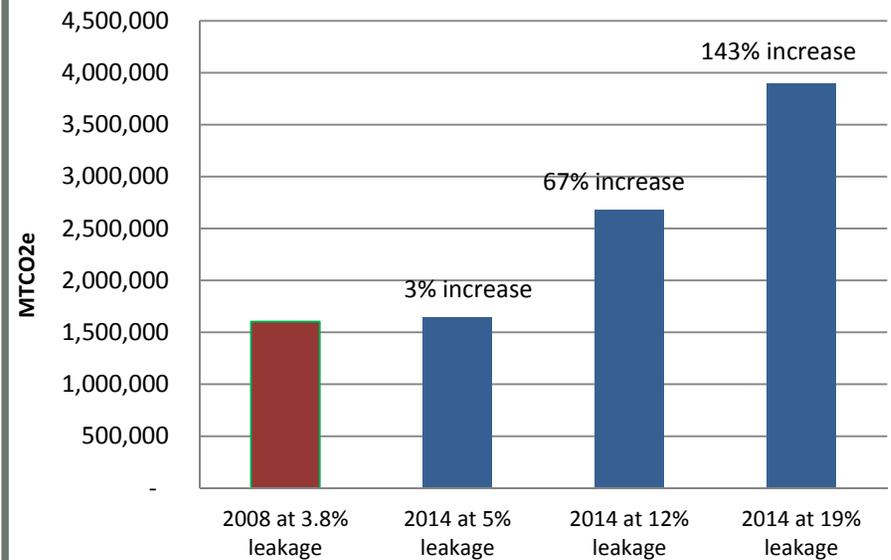
- Short-term global warming impact of methane
- Quick action necessary to avoid tipping points

# How to Account for Use of Fracked Gas?



GHG Emissions – New Shale Gas Accounting

Government: Not -53%, but **10% increase**  
(mid-range overall leakage rate of 12%)



GHG Emissions – New Shale Gas Accounting

Community: Not -21%, but **67% increase**  
(mid-range overall leakage rate of 12%)

# Implications for Future Actions

Three Critical Areas of Focus:

1. Natural Gas – transition away from natural gas obtained through hydrofracking
2. Transportation – reduce miles driven and use vehicles with fewer ghg emissions per mile
3. Renewables – keep growing

Inventories and Detailed Methodologies Available:  
[www.tompkinscountyny.gov/planning/energy-climate](http://www.tompkinscountyny.gov/planning/energy-climate)

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