



# 2014 GREENHOUSE GAS EMISSIONS AND ENERGY USE INVENTORY

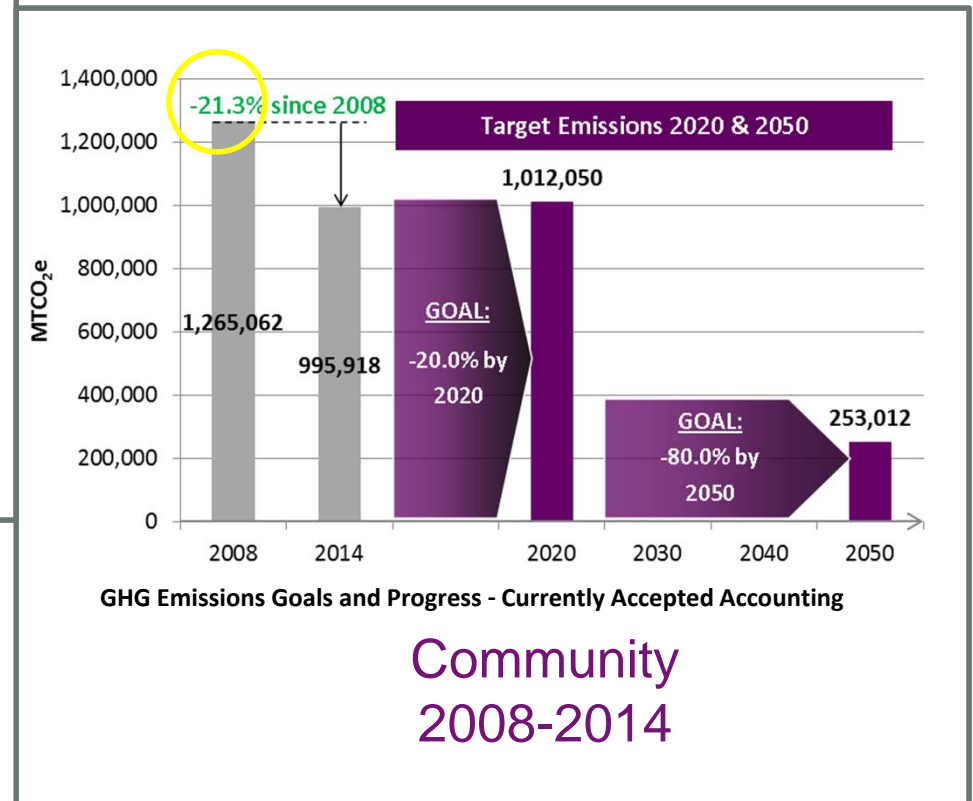
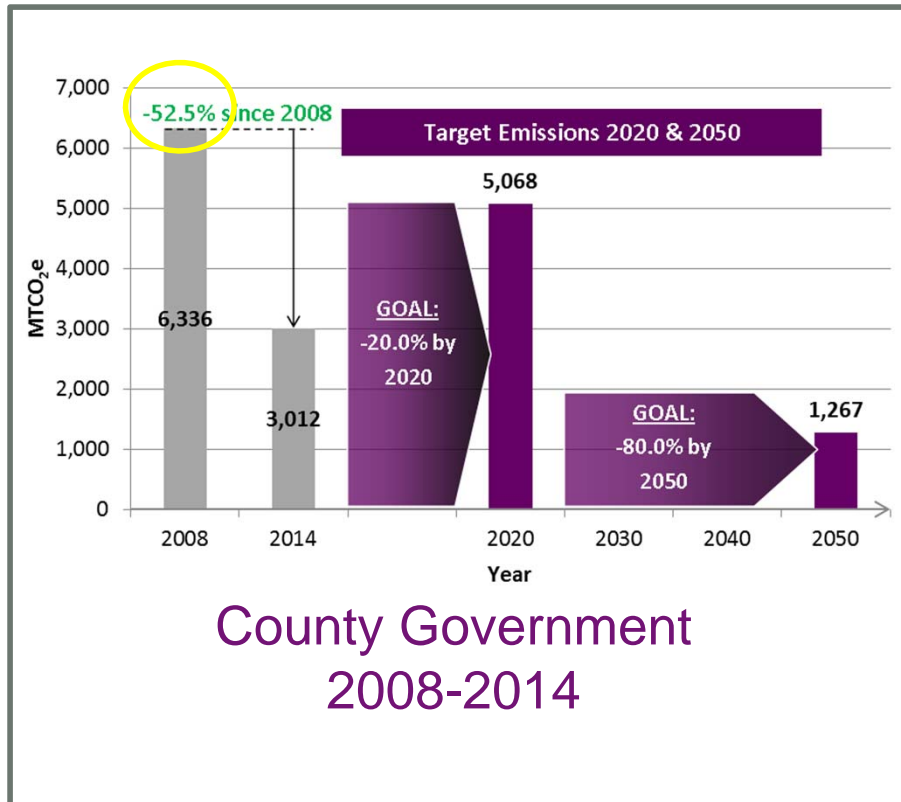
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Tompkins County Planning Department

# 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!

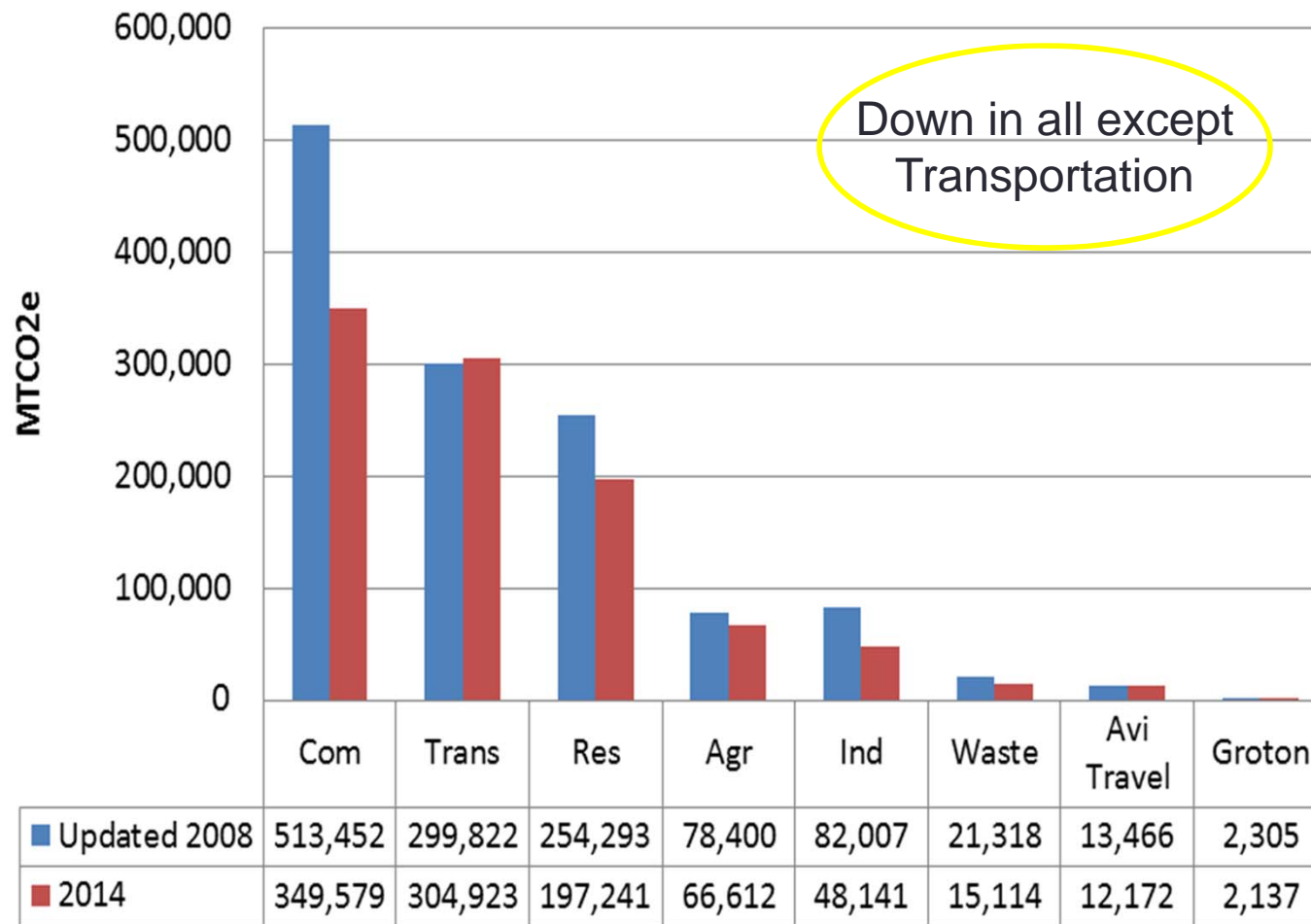


But there are other considerations

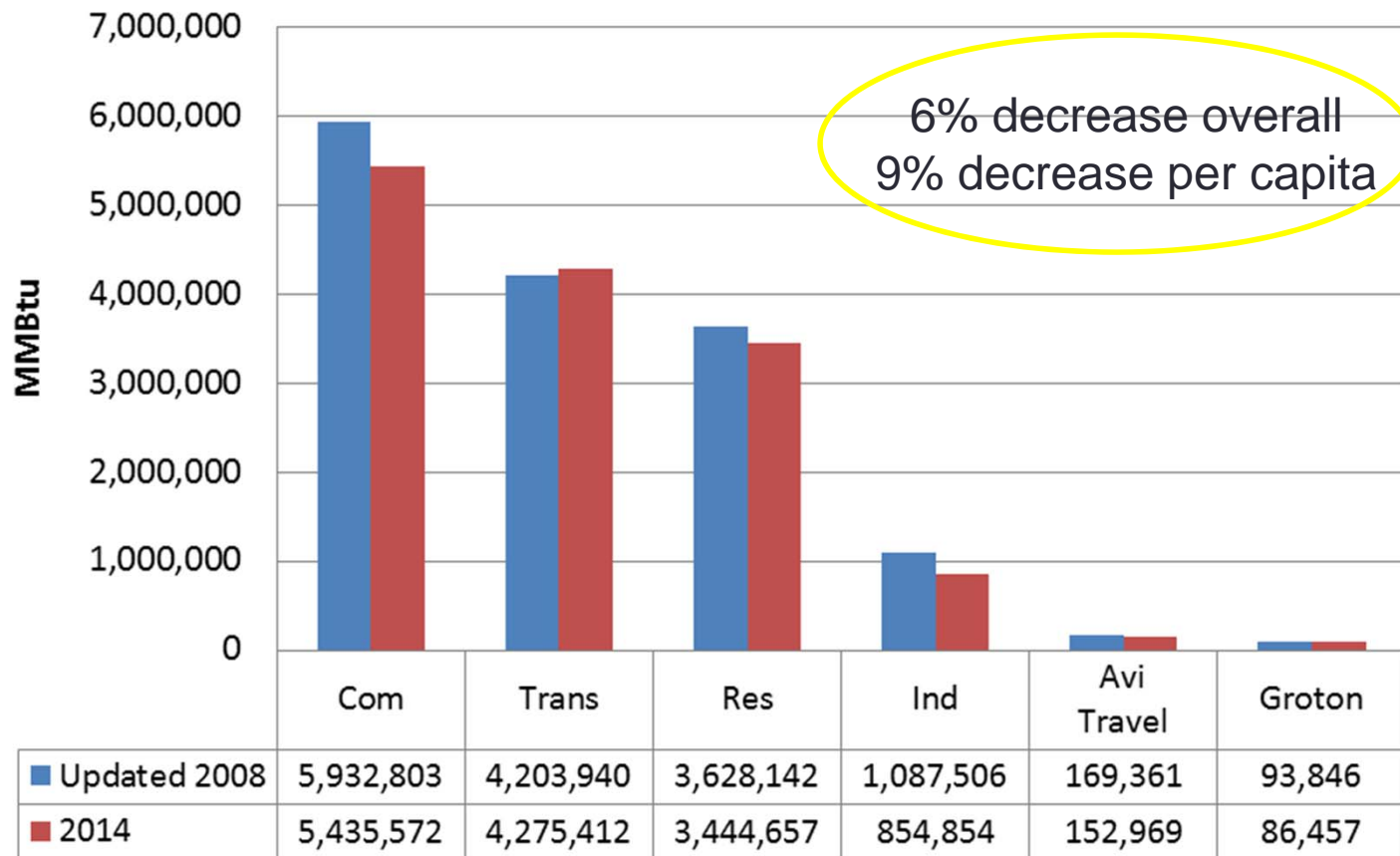


# **Tompkins County Community**

# 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

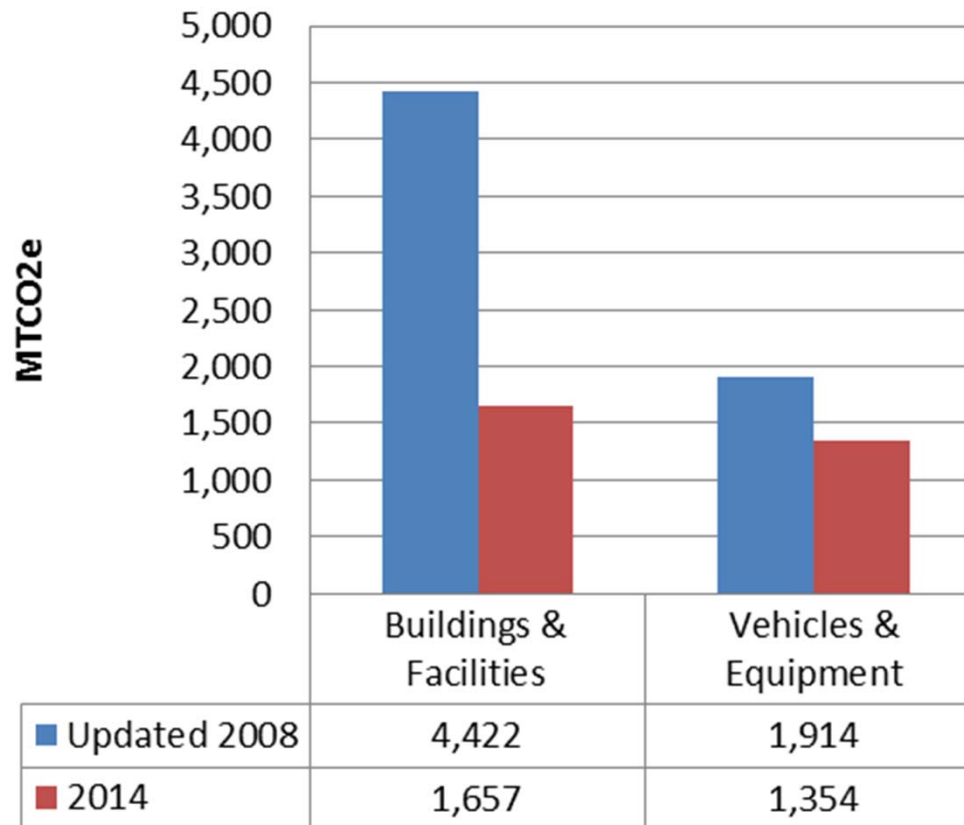
Inventory Year Fuel Mix of Upstate NY in Percent	2008 (%)	2014 (%)	Percent Change
Natural Gas	15.5	30.4	96%
Hydro	26.4	29.2	11%
Nuclear	27.0	28.9	7%
Coal	21.5	5.5	-74%
Wind	0.1	3.6	3,500%
Biomass	1.2	1.8	50%
Other Fossil	0.4	0.4	0%
Oil	7.8	0.2	-97%
Solar	0.0	0.0	0%
Geothermal	0.0	0.0	0%
Other Unknown/Purchased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





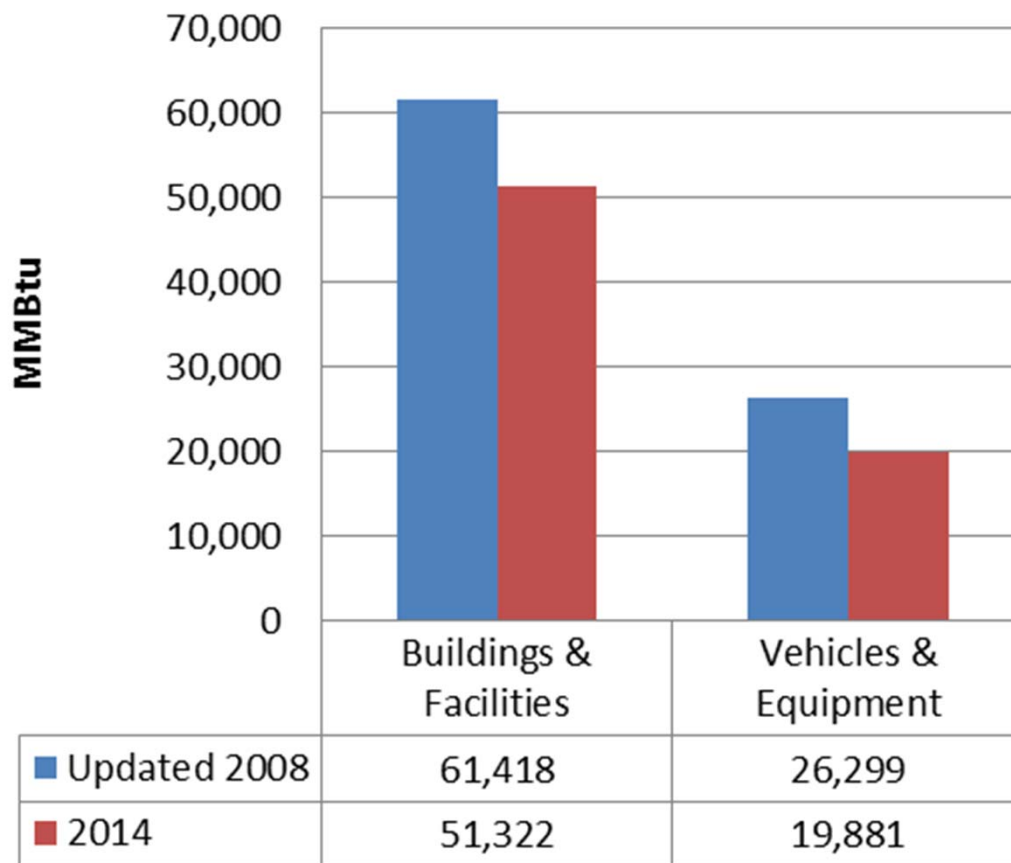
# **Tompkins County Government Facilities and Operations**

# 2008-2014 Government Emissions



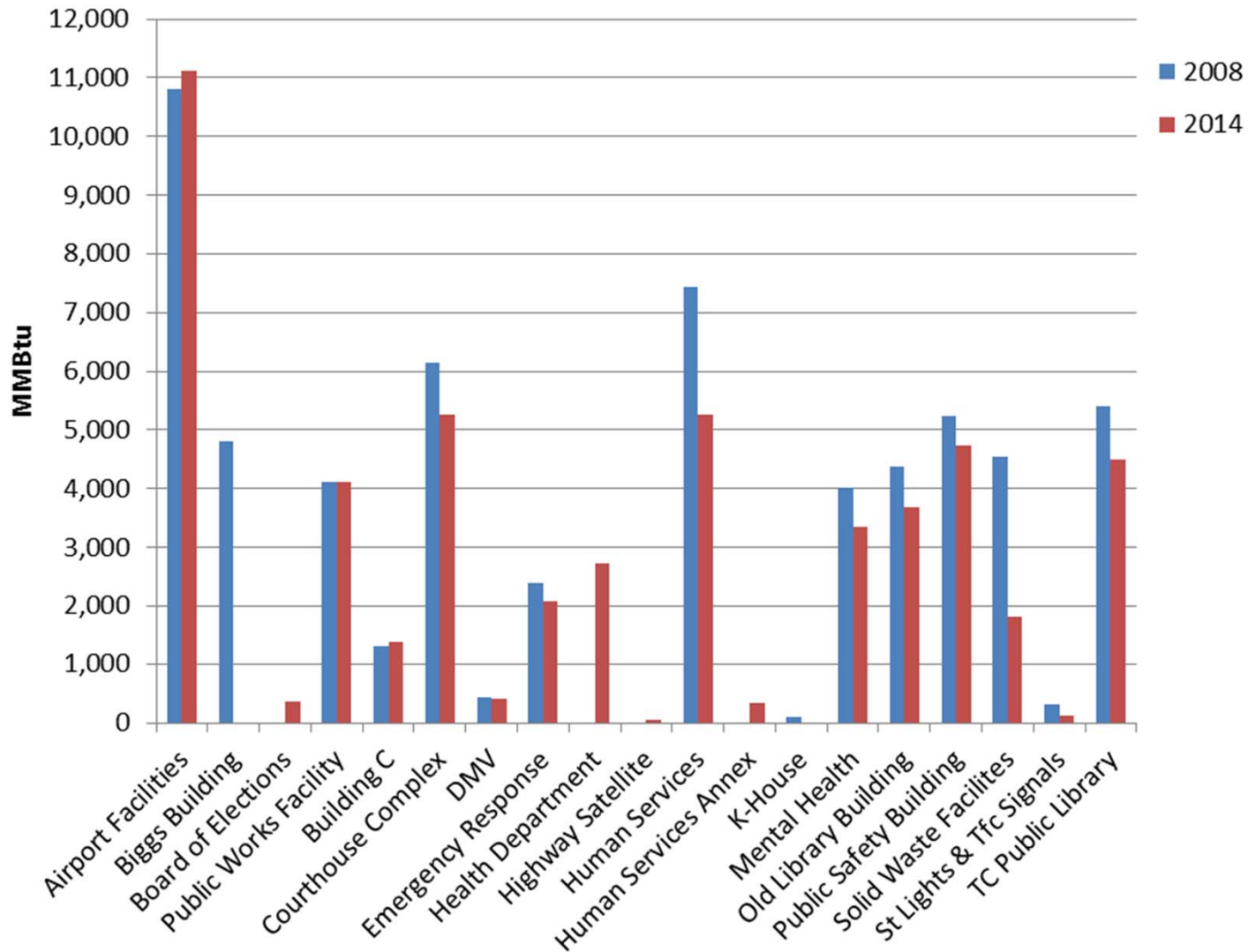
52.5% decrease

# 2008-2014 Government Energy Use



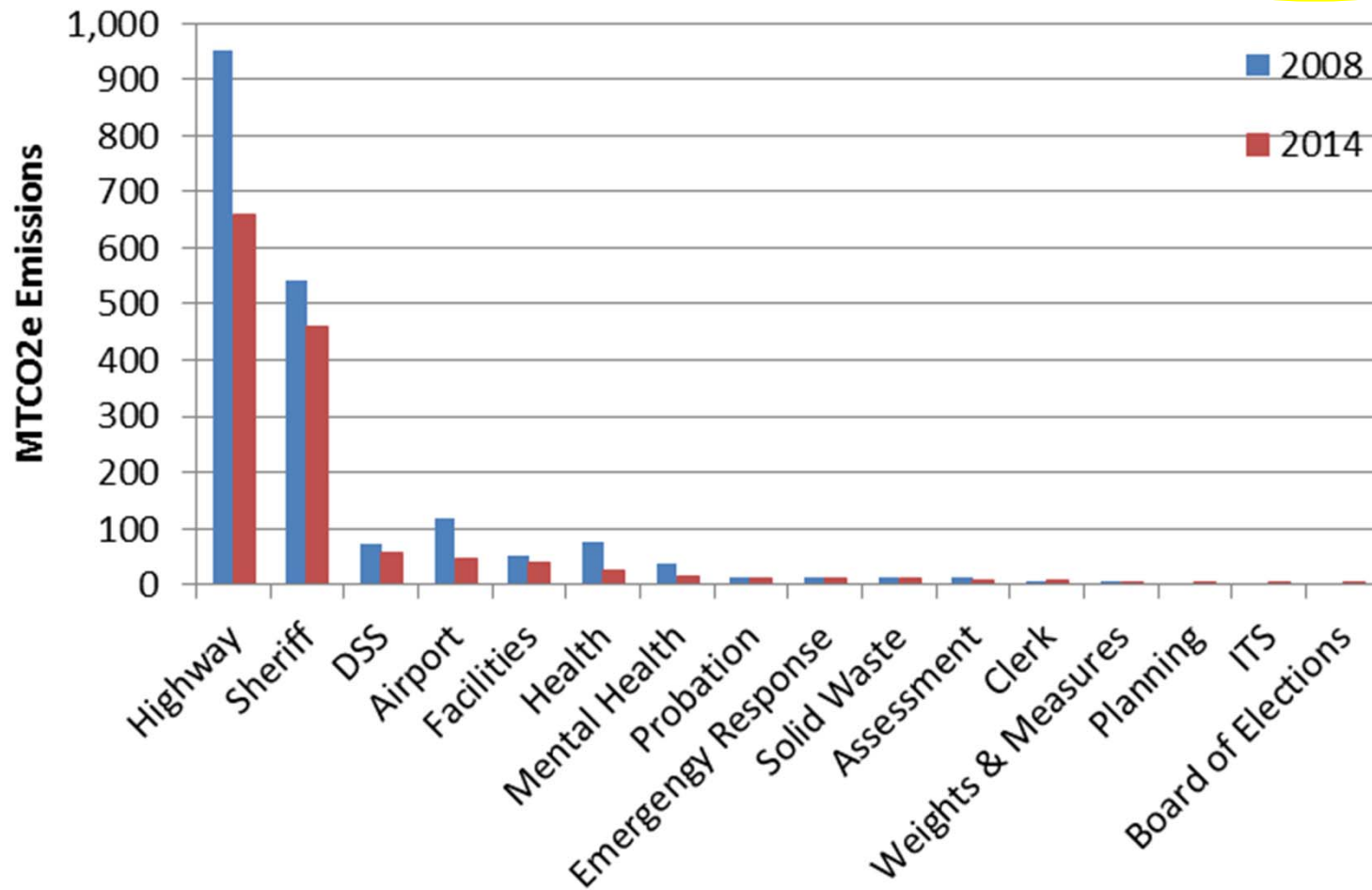
# Buildings - Energy Use

16% decrease

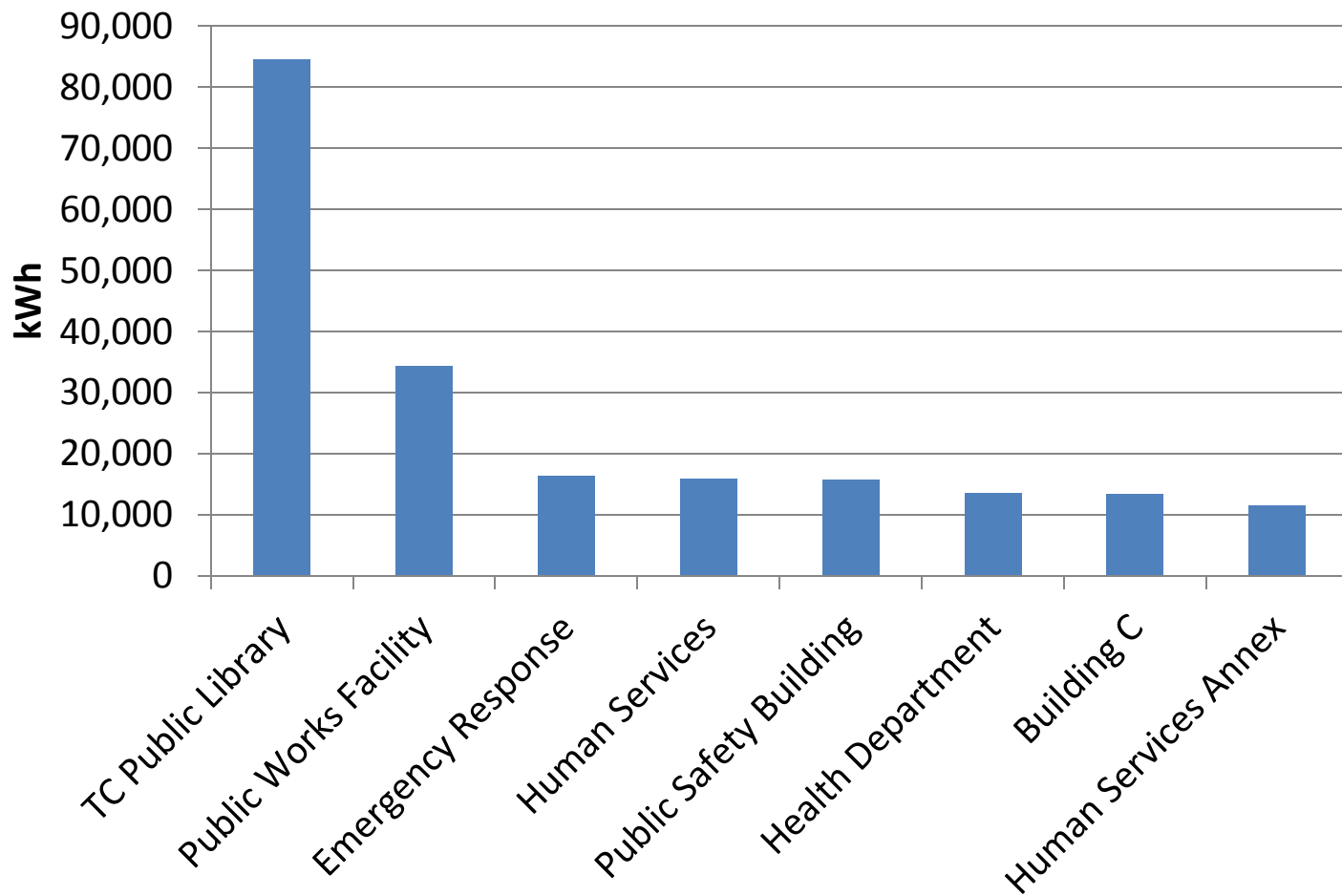


# Fleet - Emissions

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**

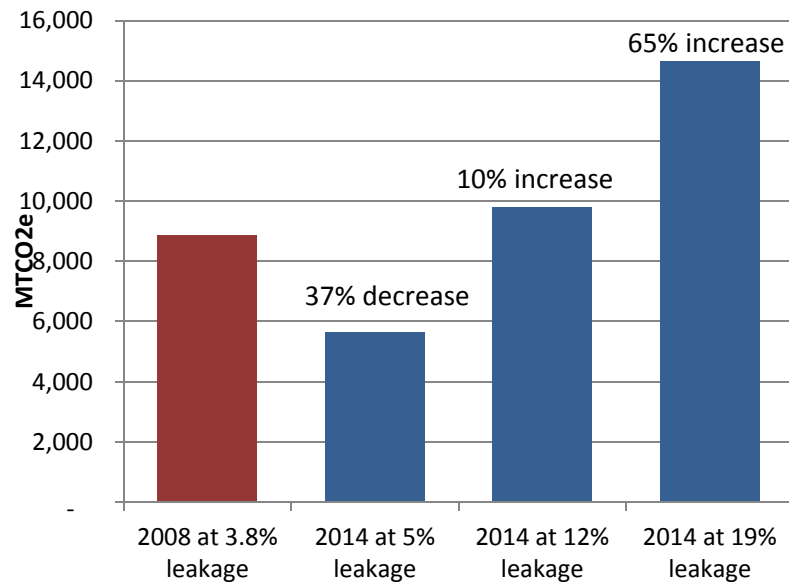
- Leakage of pure methane from production and distribution range from 5-19% of total produced

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

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

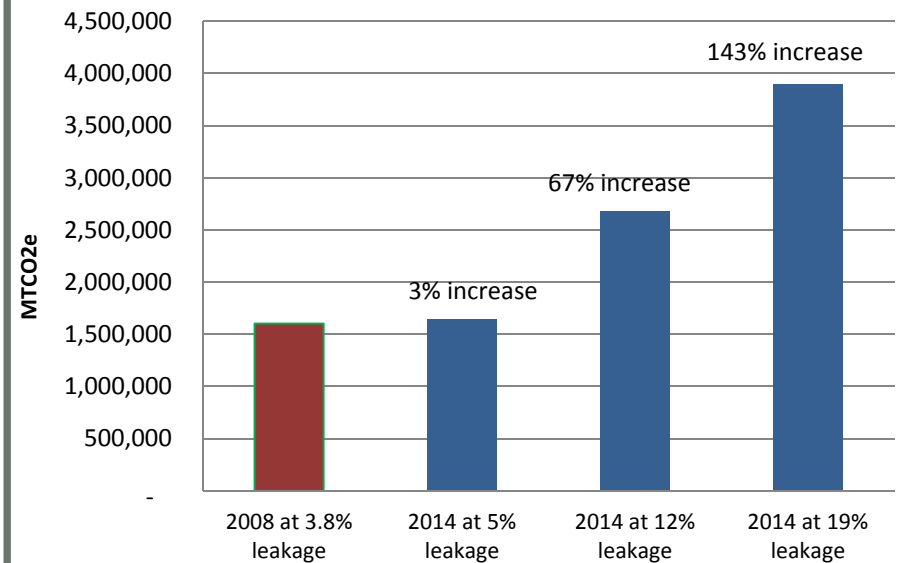


# How to Account for Use of Fracked Gas?



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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