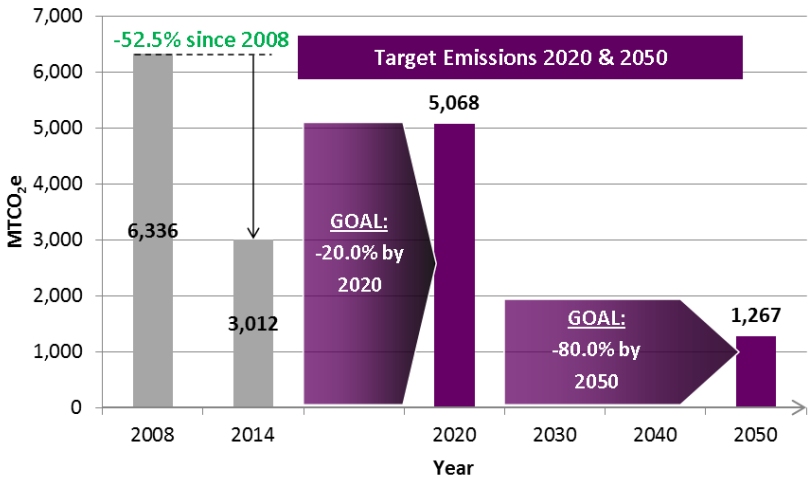
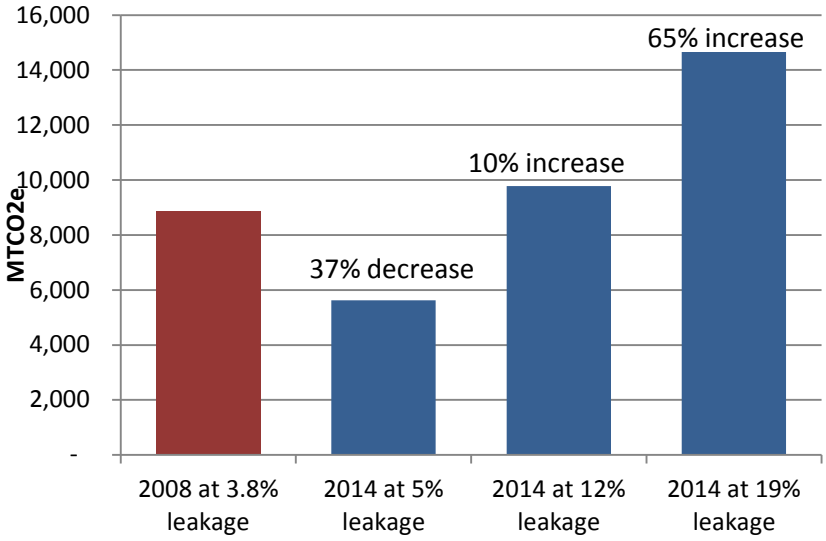
Executive Summary: 2014 Tompkins County Government Operations GHG Emissions and Energy Use Inventory



GHG Emissions Goals and Progress – Currently Accepted Accounting



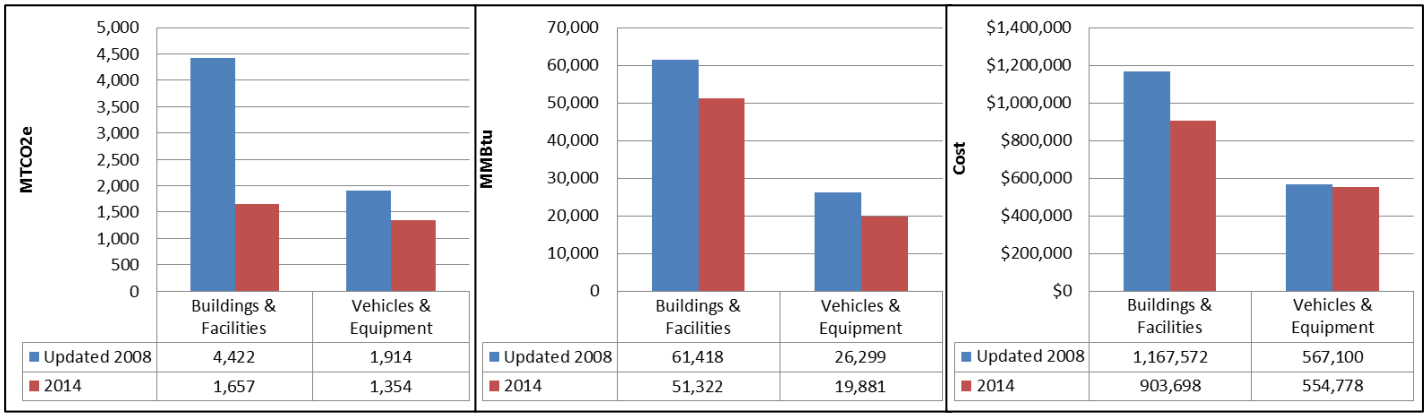
GHG Emissions – New Shale Gas Accounting

Tompkins County reduced the greenhouse gas (GHG) emissions from its government operations 53 percent from 2008 levels by 2014. This reduction far surpassed the target goal of a 20 percent reduction by 2020, and means that County government is nearly two-thirds of the way to achieving its goal of at least an 80 percent reduction from 2008 levels by 2050. Although this is encouraging news and reflects the positive results of the County's concerted efforts to reduce its emissions, this is tempered by the fact that a considerable amount of this reduction has been achieved through a major shift from coal to natural gas to power the electric grid, and there are growing concerns about the impact of natural gas extracted using high-volume hydrofracking techniques on total GHG emissions, including methane.

Between 2008 and 2014 the source of the gas used in the community, including by the Tompkins County government, transitioned from wells drilled through conventional methods to fracked gas, primarily coming from the Marcellus Shale in Pennsylvania. Emissions associated with fracked shale gas are calculated extremely differently depending on whether current accounting methods or evolving climate science accounting methods are applied. **If the new science is applied, the County government has not seen a remarkable 53 percent reduction in emissions, but instead has *increased* total GHG emissions by 10 percent** between 2008-2014 if the 20-year global warming potential and mid-range overall leakage rate of 12% are applied for methane emissions. The higher leakage range of 19% would result in a 65% increase in emissions. While all recent local studies have pointed to the need to transition away from natural gas regardless of accounting methods, the conclusion that emissions are sharply increasing due to reliance on fracked gas calls for making that transition to renewable energy much more quickly. Applying this conclusion to the Inventory calls for rapidly adding more renewable electricity generation in the County and developing strategies to dramatically reduce reliance on natural gas.

While this tension between two GHG accounting methods runs throughout this document, the main focus is on presenting the results using generally accepted GHG accounting methodologies and calling out differences with new climate science accounting in separate sections of the report.

Results: Comparison of Emissions, Energy Use, and Energy Costs 2008-2014



GHG Emissions (MTCO2e) **Energy Use (MMBtu)** **Energy Costs ($)**

The County government has two overarching sectors (1) Buildings & Facilities, which include electricity and thermal heating for all County buildings and facilities, including the Airport, Solid Waste Facilities, and County-owned Street Lights & Traffic Signals, and (2) Vehicles & Equipment, which includes both on- and off-road vehicles and equipment powered by vehicle fuels. Both sectors saw a decrease in GHG emissions, energy use, and energy costs between 2008 and 2014, although the decrease in costs for the Vehicle & Equipment Sector was relatively small at $12,322.

The Buildings & Facilities Sector saw a significant reduction in emissions, largely due to the County's purchase of Green-e Energy Certified Renewable Energy Certificates, which allowed it to claim the environmental benefits of renewably-generated electricity for nearly all of its 2014 electricity use. The influence of these Renewable Energy Certificates means that emissions are less closely correlated with energy use for the Building & Facilities Sector.

Results: 2014 Emissions and Energy Use

GHG Emissions. The total County government GHG emissions 2014 were approximately 3,000 metric tons of carbon dioxide equivalent (MTCO2e), with 52 percent of those emissions from natural gas consumption and 45 percent of emissions from County vehicles and equipment fueled by gasoline, biodiesel, diesel, and ethanol fuels.[1]

Electricity. The total electricity consumed by County government operations in 2014 was 6,503,913 kWh. 6,100,000 kWh, or 94 percent, of that electricity was offset by the purchase of Green-e Energy Certified Renewable Energy Certificates, which allow the County to claim the environmental benefits of this renewably generated electricity rather than the party generating it.

Thermal Energy. The total amount of natural gas consumed for County government operations in 2014 was 295,868 therms. A small amount of propane and waste oil, 100 and 700 gallons respectively, was used for additional heating.

Vehicle and Equipment Fuel. In 2014, County government consumed 19,881 MMBtus of energy to fuel its vehicles and off-road equipment such as mowers and forklifts. Vehicles and equipment consumed 153,467 gallons of fuel.[2]

Next Steps. The results of this Inventory will be used to inform development of the update to the 2020 Energy Strategy, as well as future efforts to reduce GHG emissions and to reduce consumption of energy by Tompkins County government operations. In particular, this Inventory can better inform the nearer-term efforts by the County to: update its policies; pursue additional opportunities for renewable energy and improved energy efficiency; begin transitioning towards the use of electric vehicles in its fleet; and to continually monitor progress towards meeting the County's emissions reduction goals.

[1] MTCO2e – a measure of the combined ability of emitted GHGs to trap heat.
[2] MMBtu – a measure of the energy content in fuel; used as a basis for comparing the energy content of various fuels.