



LEWIS
COUNTY
NEW YORK

Lewis County Government Operations GHG Inventory

A Preliminary Report for Baseline Year 2019

Inventory developed by:

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COLLABORATION WITH LEWIS COUNTY AND THE NYS TUG HILL COMMISSION**

Introduction

Taking steps to become more prepared and resilient to projected changes to the climate should be a priority for all communities across the globe. Lewis County recognizes this and is in the process of fulfilling action items needed in order to become a Bronze Certified Climate Smart Community as soon as Fall 2023. Lewis County has already completed many steps in its pursuit of becoming a Climate Smart Community, and is looking to continue completing action items such as the Government Operation GHG Inventory, and has partnered with SUBY ESF students as well as the Tug Hill Commission in order to do so. Completing this inventory will allow Lewis County to gauge the sources of local emissions and create a baseline for inventories moving forward.

Methodology

The Tug Hill Commission worked with Lewis County to create a Tier II GHG Inventory in 2019, which is utilized as the baseline data for evaluation and calculation. All data collection follows Climate Smart Communities and ICLEI guidelines and procedures. In addition, the Local Greenhouse Gas Inventory Tool provided by the EPA was utilized in data evaluation and calculation. Further evaluation and recommendation will be based on our interpretation of the results and the best approach to our understanding.

The sectors evaluated in this GHG Inventory include:

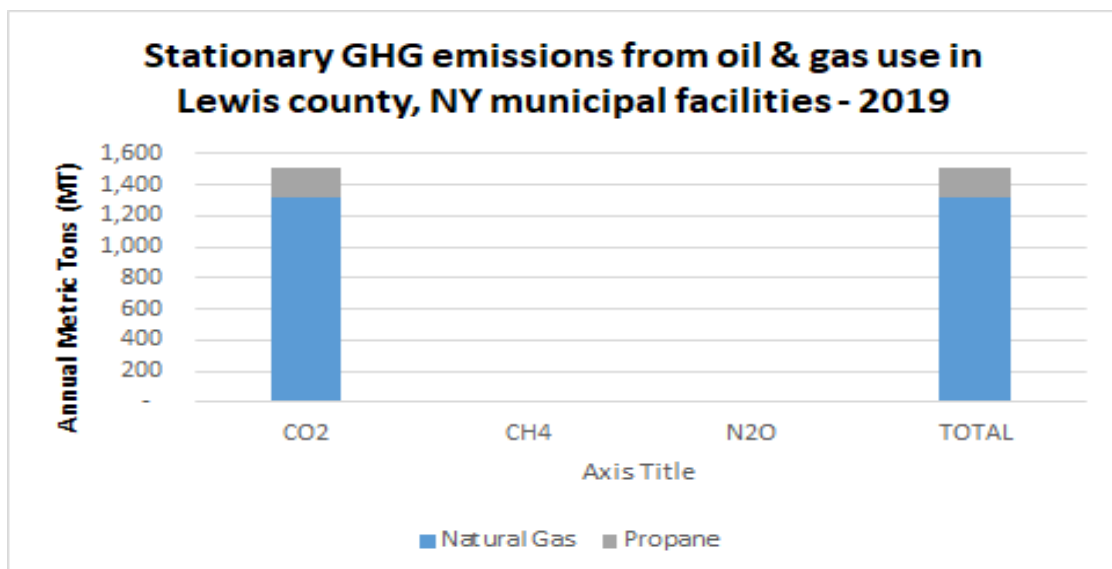
- Lewis County's Solar Development located on Outer Stowe Street in Lowville, NY
- Stationary Energy and Gas Consumption
 - Emissions from county-wide propane, natural gas, and electricity usage
- Transportation Energy and Gas Consumption
 - Emissions traced to the County fleet including Lewis County Public Transportation

Results

In 2019, Lewis County's total GHG emissions were estimated to be 4,032.82 MT CO₂e, which includes the offset impact of the 2.5 MW solar array. Without the solar array the total emissions amount to 4,344.82 MT CO₂e. The largest contribution to these emissions in Lewis County is mobile combustion at 2,108.20 MT CO₂e. The second largest emission category is stationary combustion at an estimated 1,505.63 MT CO₂e. While the lowest categorical contribution to these emissions is electricity use at an estimated 419.00 MT CO₂e when including the county solar array.

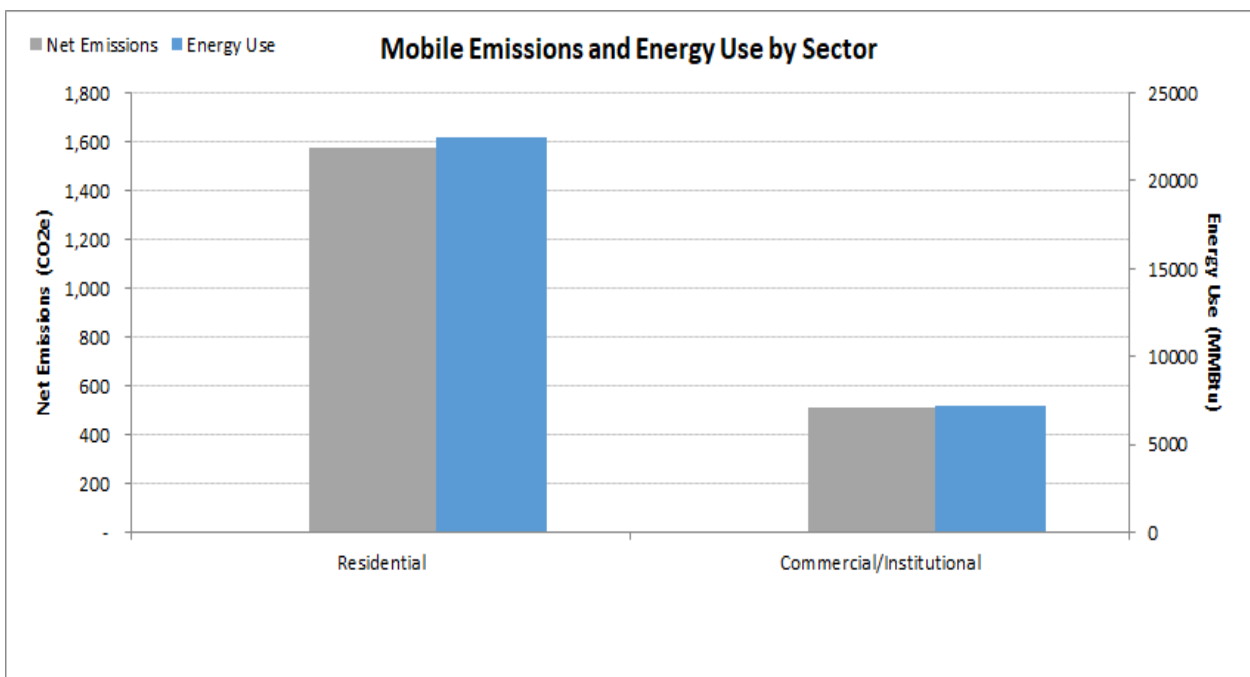
Stationary Energy and Gas Use

Stationary electricity and fuel consumption include the use of propane, natural gas, 911 towers electricity, and all electricity used in county facilities. The stationary energy use section, including combustion and electricity use contributes 1,924.63 MT CO₂e. In the stationary combustion category, 1,505.63 MT CO₂e was produced due to propane and natural gas consumption. 731.00 MT CO₂e was produced due to 911 tower and county facility's electricity use before the offset effects of the county solar array were incorporated, decreasing this to 419.00 MT CO₂e. The mobile emissions sector comprised an estimated 52.3% of County emissions while the stationary energy use sector contributes the second most to the total emissions with an estimated 47.7% of total emissions by Lewis County.



Transportation Energy and Gas Use

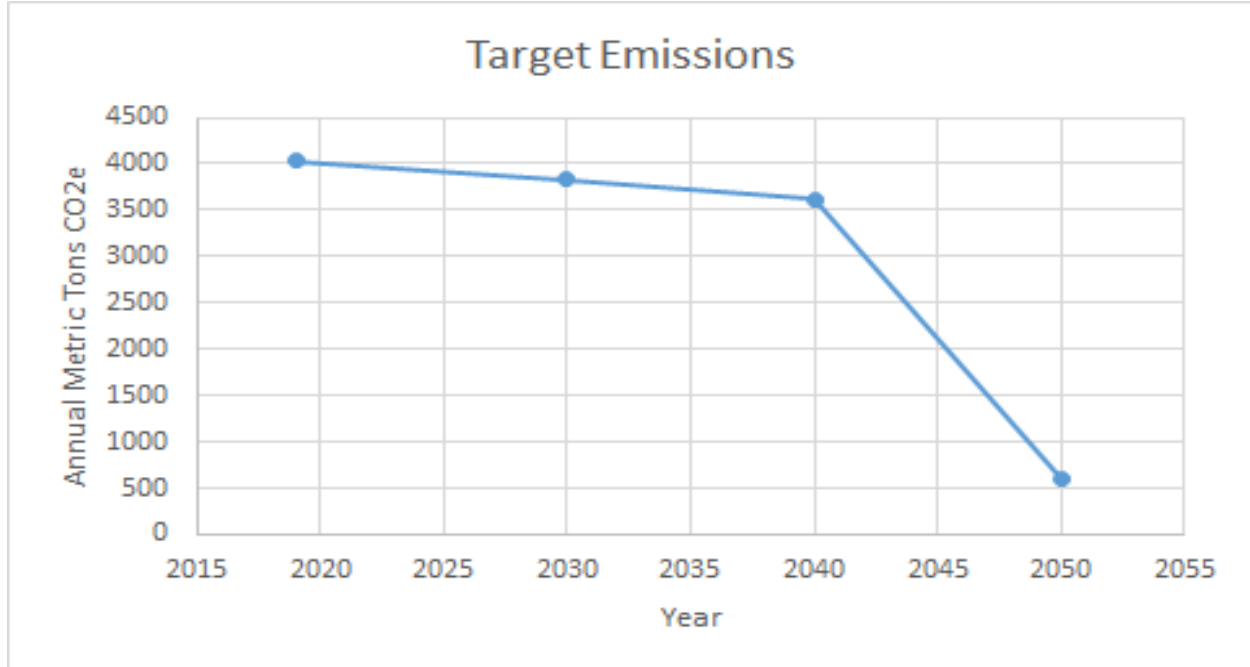
Transportation diesel and gas consumption include emissions from the County fleet as well as estimated employee commutes. This mobile sector contributes 2,108.20 MT CO₂e to the county's total emissions. The mobile sector can be split into a commercial sector which includes the county fleet and public transportation as well as residential which can be seen in the graph below. The Transportation portion of the GHG inventory contributes the most to the total emissions making up 52.7% of 2019 emissions by Lewis County.



County Solar Array

The Lewis County Solar Array offsets the GHG emissions from electricity generation in the stationary electricity use sector. The estimated value of this offset is 312.00 MT CO₂e. Therefore, there is a decrease in total energy emissions from 731.00 MT CO₂e to 419.00 MT CO₂e and the total GHG emissions decreased from 4,344.82 MT CO₂e to 4,032.82 MT CO₂e. The current percentage of electricity produced from renewable energy sources equates to 42.7% of electricity used by Lewis County as of 2019.

Target Emissions



Target emissions are based on the New York State Climate Leadership and Community Protection Act. In 2019 Lewis County produced 4,032.82 MT CO₂e. If the county were to increase the proportion of its electricity produced using renewable energy sources to 70% from the 2019 level of 42.7% total GHG emissions from the county would decrease to 3,833.13 MT CO₂e. With consideration of the NYS Climate Leadership and Community Protection Act Lewis County would reduce its total GHG emissions to 3,613.83 MT CO₂e by 2040 to meet the goal of zero GHG emissions from electricity production. This is without considering GHG emissions decreasing in any other sectors which would likely coincide. The last point shows Lewis County achieving an 85% reduction in emissions by 2050 which calculates to 604.92 MT CO₂e. The NYS climate act references an 85% reduction from 1990 levels however, given the abundance of renewable energy development in Lewis County we think it would be reasonable to hope for an 85% reduction from 2019 levels, as depicted.

Future goals

According to the New York State Climate Leadership and Community Protection Act¹ future goals include:

1. Reduce greenhouse gas emissions.
2. Improve energy efficiency.
3. Achieve 70% renewable energy by 2030.
4. Achieve 100% zero-emission electricity by 2040.
5. Reduce greenhouse gas emissions by 85% by 2050.

Objectives that the county could implement to achieve these goals include:

1. Increase the use of electric or hybrid vehicles. According to the book *Hybrid and Electric Cars* by James Kliesch, “Unlike vehicles with internal combustion engines, electric cars have zero in-use emissions.”² Therefore by decreasing the use of traditional cars and increasing the use of electric cars, Lewis County will decrease greenhouse gas emissions significantly. Also, there is currently a grant in New York State that will rebate municipalities that purchase or lease new zero-emission vehicles for fleet use³, which would make this option more budget-friendly.
2. Implement efficient heating and cooling technologies (for example: ground-source heat pumps). According to the article “Geothermal Heat Pumps Save Consumers Money”, “geothermal technology can reduce energy costs 30 to 60

¹ NYSERDA. (2019). *2019 New York State Climate Leadership and Community Protection Act*. NYSERDA.
<https://climate.ny.gov/>.

² Kliesch, J. (2015). Why Electric Cars Are Cleaner. In L. I. Gerdes (Ed.), *At Issue. Hybrid and Electric Cars*. Greenhaven Press. (Reprinted from *Mother Earth News*, 2011, 58)
https://link.gale.com/apps/doc/EJ3010920204/OVIC?u=nysl_ca_nyempire&sid=OVIC&xid=62d3965d

³ DEC. (n.d.). *Grant Funding for Municipalities*. Grant Funding for Municipalities - NYS Dept. of Environmental Conservation. <https://www.dec.ny.gov/energy/109181.html>.

percent compared to traditional furnaces.”⁴ Not only does it save you money, but geothermal heating pumps also “emit little carbon dioxide, no nitrogen oxides, and very low amounts of sulfur dioxide”⁵. You can also get subsidies and tax incentives from implementing geothermal heating pumps for additional support and savings.

3. Expand the current solar array to offset even more of the County’s emissions.

Conclusion

Lewis County has partnered with state and local agencies to reduce GHG emissions and become a Climate Smart Community. Part of this commitment led Lewis County to complete this Government Operations GHG Inventory. This study is the first attempt to determine a baseline for Lewis County’s current emissions and analyze the first steps needed to reduce these emissions. This report has been presented to Lewis County at a public meeting and will also be shared on the County’s website.

Lewis County’s 2019 Baseline emissions total 4,032.82 MT CO₂e. 2,108.20 MT CO₂e from Transportation energy use, 2,236.63 MT CO₂e from Stationary energy use, and an offset of 312.00 MT CO₂e from the County solar array. The most significant step towards reducing GHG emissions would be decreasing gas and diesel consumption in the transportation sector.

⁴ Worden, J. (2006). Geothermal Heat Pumps Save Consumers Money. In D. Gunkel (Ed.), *Current Controversies. Alternative Energy Sources*. Greenhaven Press. (Reprinted from *E/The Environmental Magazine*, 2005, January-February)
https://link.gale.com/apps/doc/EJ3010426222/OVIC?u=nysl_ca_nyempire&sid=OVIC&xid=939675d4

⁵ Worden, J. (2006). Geothermal Heat Pumps Save Consumers Money. In D. Gunkel (Ed.), *Current Controversies. Alternative Energy Sources*. Greenhaven Press. (Reprinted from *E/The Environmental Magazine*, 2005, January-February)
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