

*This is a copy of a class assignment. Use it as evidence in my portfolio of comfortability and competency in compiling, measuring, and executing a GHG Inventory.*

# Greenhouse Gas Inventory Project

## Section 1

### Boundary

Temporal: I selected to report on my GHG emissions from July 2023 through June 2024. It is a 12-month period. In choosing this time period I am accepting that there will be some discrepancy and deeper analysis given to our use of GHG based on our household use since I moved in December of 2023.

Space: I am choosing to run a Scope 1 and Scope 2 inventory based on ownership. I am the owner of both my home and my vehicles, so that makes the most sense.

### Emission Sources

<b>Scope</b>	<b>Emission Source</b>	<b>Data point(s) needed</b>	<b>Data source(s)</b>	<b>Data unit(s)</b>	<b>Confidence level</b>	<b>Explanation of confidence</b>
1	Gas used in home	Gas used	Citizens bill	Therms Dollars	High	It is read on my bill
1	Gas used in vehicles	Gas used	<a href="https://www.fueleconomy.gov/feg/findacar.shtml">https://www.fueleconomy.gov/feg/findacar.shtml</a>	MpG	Medium	It isn't the rate on my exact vehicle. It is an average.
1	Gas used in lawn mower	Gas used	Estimation of gallons used	MpG	Medium	I don't have a paper trail
2	Electricity used in home	Electricity used	AES Indiana bill	KWh Dollars	High	It is read on my bill

## Task 2 – Find the Data

<b>Scope</b>	<b>Emission Source</b>	<b>Confidence level</b>	<b>Explanation of confidence</b>	<b>How is the collection process?</b>
1	Gas used in home	High	It is read on my bill	Very well. Found the last year on my Citizen's bill
1	Gas used in vehicles	Medium	I don't have exact mileage used over the temporal boundary for my exact vehicles.	This one is t tricky. We have two cars. One gets a regular oil change. The other doesn't mostly because it has a very slow leak, so it doesn't get a regular replacement every ~5,000 miles. I could go back and track when I bought gas, but I couldn't tell you for which vehicle we purchased it for.
1	Gas used in lawn mower	Medium	I don't have a paper trail	I rarely mow my lawn. I use about 2 gallons per year. I don't have a way of tracking that because I usually buy that gallon when I fill up for the vehicle I am driving at the time.
2	Electricity used in home	High	It is read on my bill	Very well. I pulled 12 months of bills from AES Indiana

- What are some alternative data sources you could explore?
  - Besides the oil or gas receipts it is difficult. I've debated taking all of those, then finding the mpg for each of the vehicle types I have to get an average. We drive roughly 2/3 with the more fuel efficient vehicle.

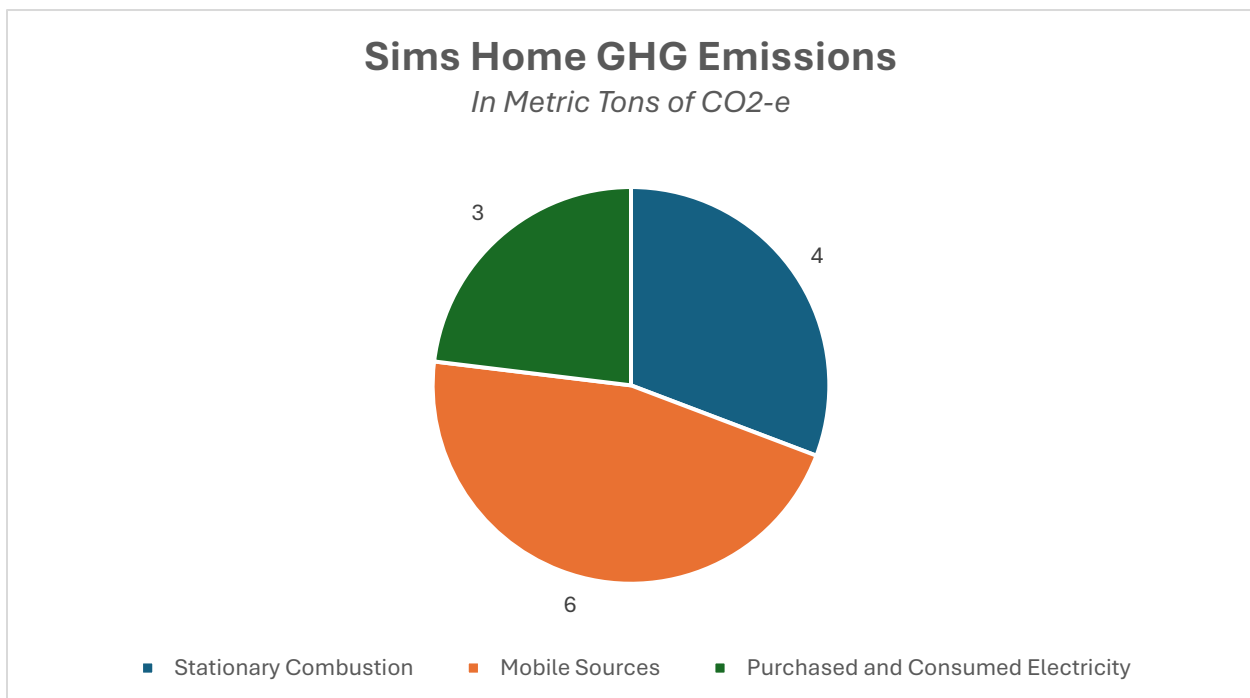
## Part 3

3.1 [GHG Assessment](#)

Using the information collected in Part 1 and Part 2 of this assignment:

- I am working with the EPA GHG Calculator
- Therms for gas, kWh for electricity, and gallons for mobile sources
- Input all data into your calculator, run analysis, and get results (Done)
- Present your total GHG footprint data:

<b>Sims Home GHG Emissions</b>	
Scope	CO2-e (metric tons)
<b>Scope 1 Total</b>	<b>10</b>
Stationary Combustion	4
Mobile Sources	6
<b>Scope 2</b>	<b>3</b>
Purchased and Consumed Electricity	3
<b>Total</b>	<b>11</b>



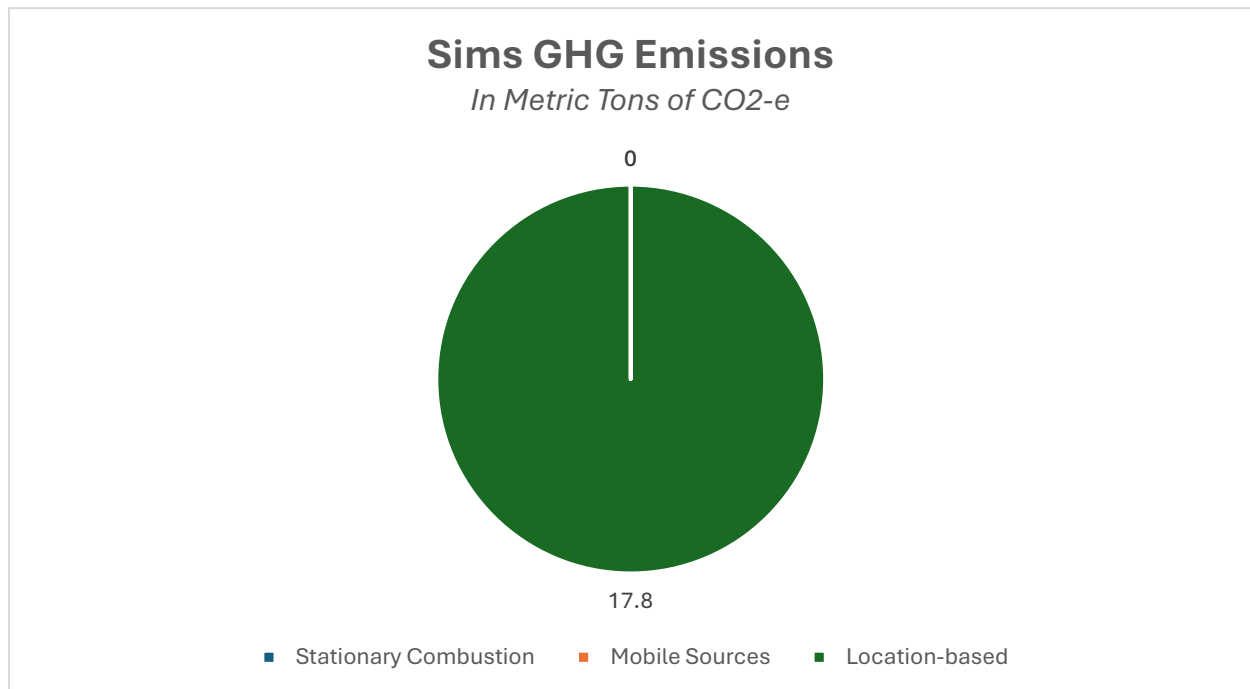
## Part 3

3.2 [GHG Assessment Simple Recommendations](#)

- For each emissions source, identify the most appropriate solution(s) to significantly reduce or eliminate (preferred) your personal GHG emissions. Explain why you chose that solution(s) for yourself.
- Reductions in:
  - Stationary Combustion emissions
    - First and foremost, keep our heat lower in the colder months. Qualitatively, we are managing temperature with a young child in the home. We could address this with wool and warmer clothes or a heated blanket.
    - Additionally, we can turn down the hot water tank and use the cold water setting when washing unless heat is necessary. This is not to mention that we could finance a tankless hot water heater so that hot water is made on demand.
    - We could switch to an electric furnace or mini splits, as well as an electric water heater. This would effectively cut out our stationary combustion emissions at home. There would be an increase in our electricity usage.
  - Mobile Source emissions
    - An endless debate that is constrained by finances. We can get an electric car or light-duty truck. We could also get a cargo e-bike that would allow us to transport our children to school by pedal. Both options would increase electricity use.
    - We do our best to combine trips where possible, though it is a work in progress. A solution to this is stepping up our discipline and scheduling out our anticipated needs.
    - Our largest hurdle to reducing these emissions is where childcare is located. Coming up we expect the location to be closer to home which would immediately reduce our emissions. This has been a challenge when reflecting on our priorities and values.
  - Electricity emissions

- I've just switched to the Green Power option with AES which effectively cuts our electrical emissions to zero for a few extra dollars a month. Any adjustments made in Scope 1 would be captured by this change.
  - Ideally, we are also able to implement solar electricity usage on site, which is a dream.
  - Last, we get an electric lawn mower. Ideally, we are not mowing at all, rather planting low-lying natives or shepherding a sheep or goat.
- Assuming your identified solutions are employed, calculate and show the anticipated impact (ie: amount of MTCDE reduced or eliminated).

Sims Home All-Electric Emissions	
Scopes	CO2-e
Scope 1	0.0
Stationary Combustion	0.0
Mobile Sources	0.0
Scope 2	17.8/0.0
Location-based	17.8
Market-based	0.0



## Part 3

### 3.3

#### Goals

##### **What was the intended outcome of your GHG inventory?**

I wanted to know the emissions of my home use.

##### **Do you feel like you met that outcome? Why or why not?**

Yes, I can see that I use 11 emissions. Interestingly, my emissions went up when in my all-electric scenario if looking at the location based exclusively. I deduce that this is because of the coal used in RFC West. When I toggled for interest to see what my emissions would be in a California market then my emissions dropped to 8.8 MT CO<sub>2</sub>-e.

#### Data

##### **Did you have the correct data needed to complete your GHG inventory?**

I had the correct electric and natural gas usage, but my mobile sources were estimated.

##### **What challenge(s) did you experience while collecting and analyzing the data?**

Realizing that I need to take better record of my mileage in my vehicle.

##### **How did you overcome those challenge(s)?**

I recognized it and moved forward with medium confidence on my mobile sources.

#### Lessons Learned

##### **What was the most valuable lesson you learned during this project?**

I realized the GHG Inventories are made more difficult the more complex the boundary. For my home use, it wasn't that difficult given that I track my mileage in my vehicles better.

##### **How will you apply this learning in the future?**

I'll track it for my home like our finances. I'd also like to do service work for businesses in my community. It'd be great to be paid for this skill, but at this point, I'd like to just be helpful. I'd also like to apply next steps with more Scope 3 emissions.