Waste, Consumption and Natural Resources Subcommittees

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PROGRESS REPORT TO LARES TASK FORCE JUNE 4, 2021

To address LAC's GHG emissions, and adaptation/resiliency to climate change, we need to work on the Whole Enchilada, including:

- Waste/Recycling
- Consumption of Goods and Services
- Refrigerants
- Water
- Natural Spaces/Soil/Land Use/ Carbon Sinks
- Equitable resiliency/revitalization

Waste Management, Recycling and Composting

- Researching scientific principles and best practices for sustainable materials management, equitable revitalization, and climate resilience
- Reviewing baseline of local risks, assets, and vulnerabilities for broader visioning and planning initiatives
- Evaluating case studies, lessons learned, materials re-used and success stories from other communities for potential applicability
- Synthesizing information and developing key recommendations for strategies, partnerships, outreach, tools, and resources

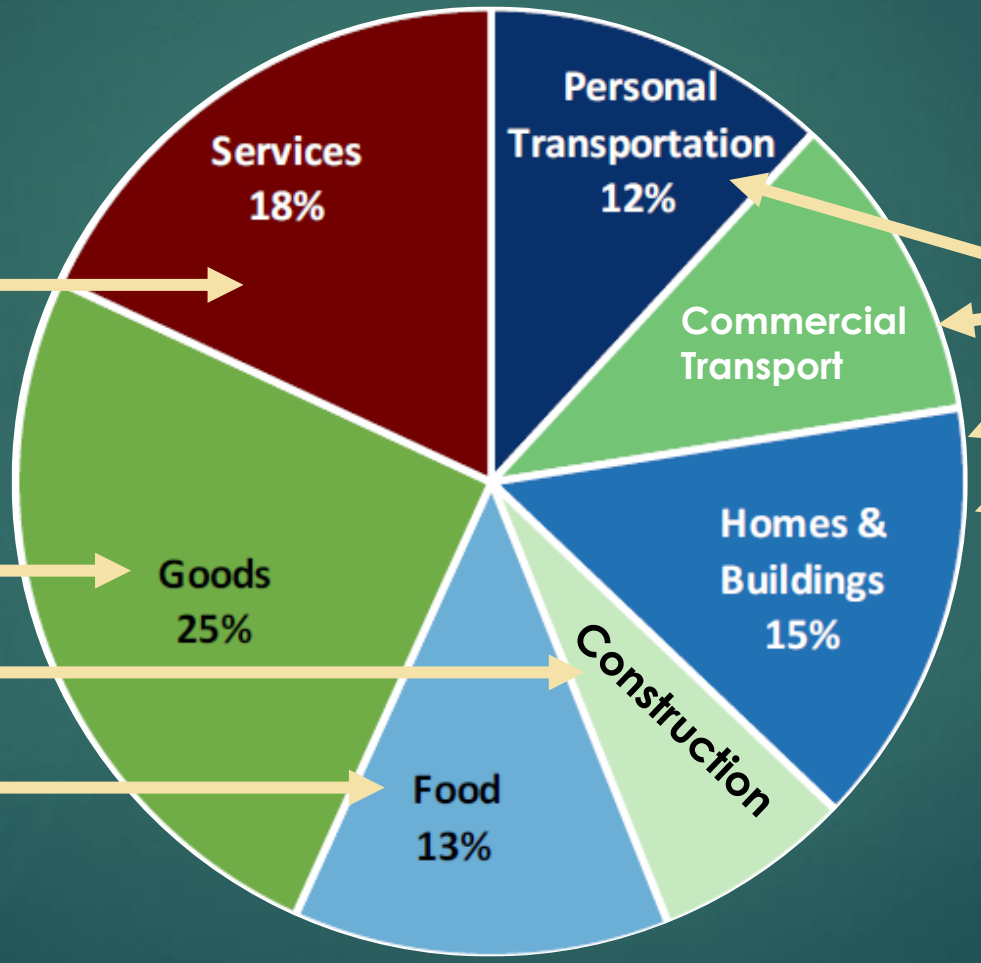
GHG emissions from Goods and Services

Many GHG inventories and Climate Change mitigation plans from other cities, states and countries address “consumption-based” emissions, including those from purchase of goods and services. Preliminary findings:

- Estimation utilizes economic/buying data and product life-cycle emissions to calculate GHG (and is pretty complex!)
- Significant contribution of these sources to community “carbon footprint”, often equivalent to or exceeding that of electricity, natural gas and fuel
- Vast majority of emissions occur during production for most goods, food (vs. use or disposal)
- Categories with highest emissions are similar across cities in N. America and Europe

“Consumption-based” GHG inventories show greater emissions

LAC residents, Businesses and Government are also responsible for emissions produced elsewhere, “embedded” in purchases

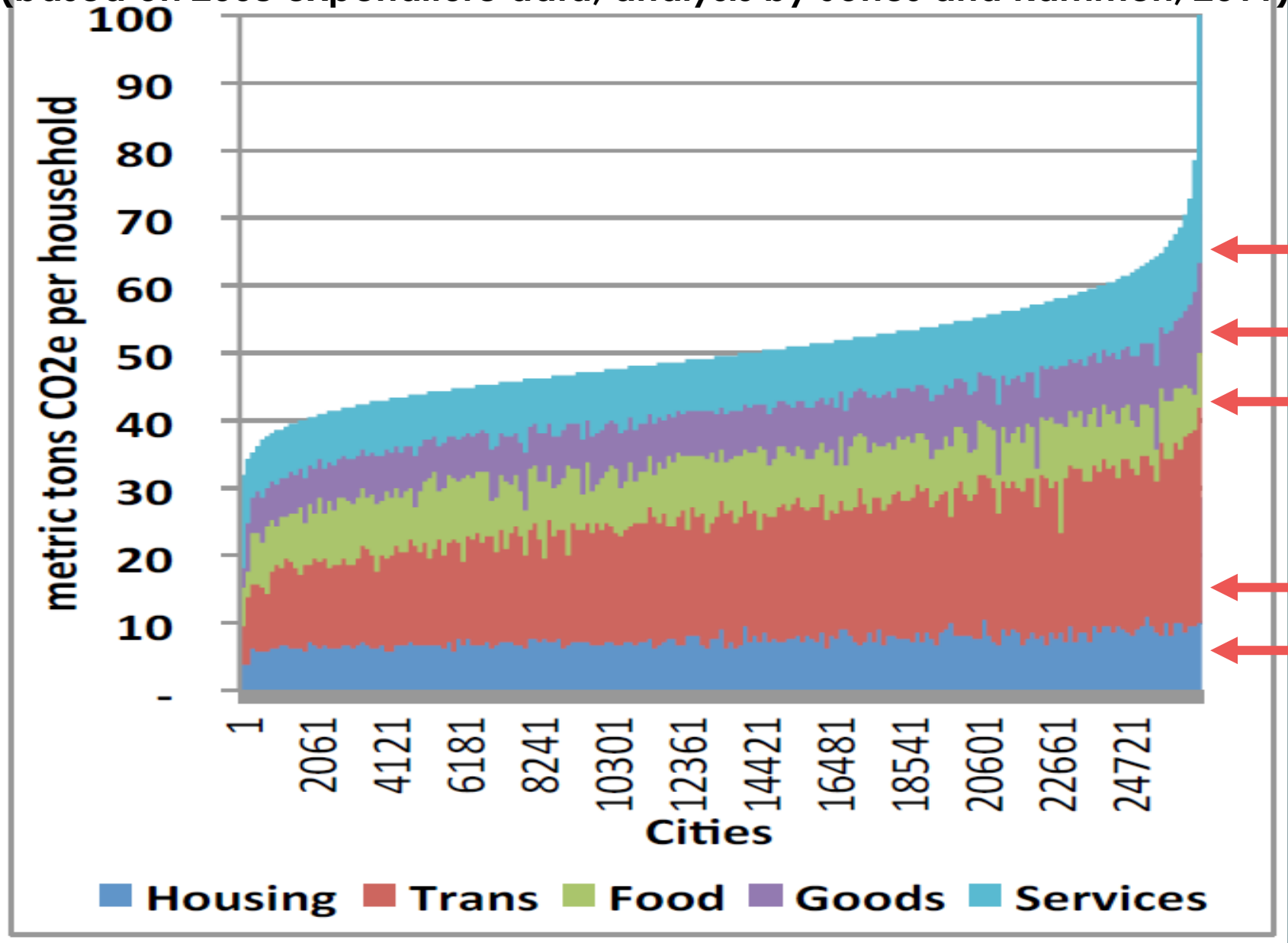


“Sector-based” inventories look at transportation fuel, electric production, natural gas usage, and waste.

(Total GHG 2015 emissions for King County, WA)

Carbon footprints by category across ca. 27,000 US cities

(based on 2008 expenditure data; analysis by Jones and Kammen, 2011)



Services
Goods
Food

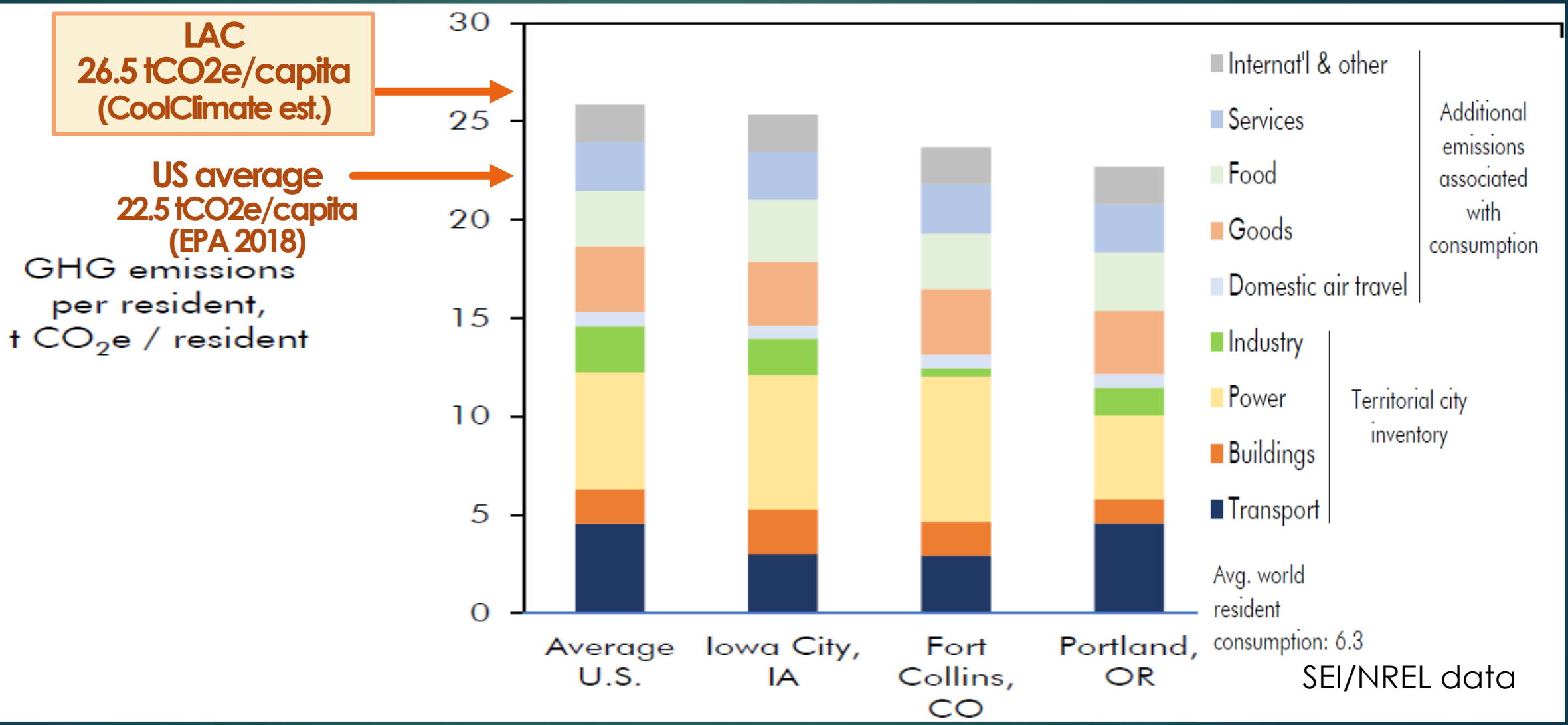
Transportation
Housing

Estimation of LAC total GHG emissions

Difficult!

LAC
26.5 tCO2e/capita
(CoolClimate est.)

US average
22.5 tCO2e/capita
(EPA 2018)



SEI/NREL data

Personal GHG calculators

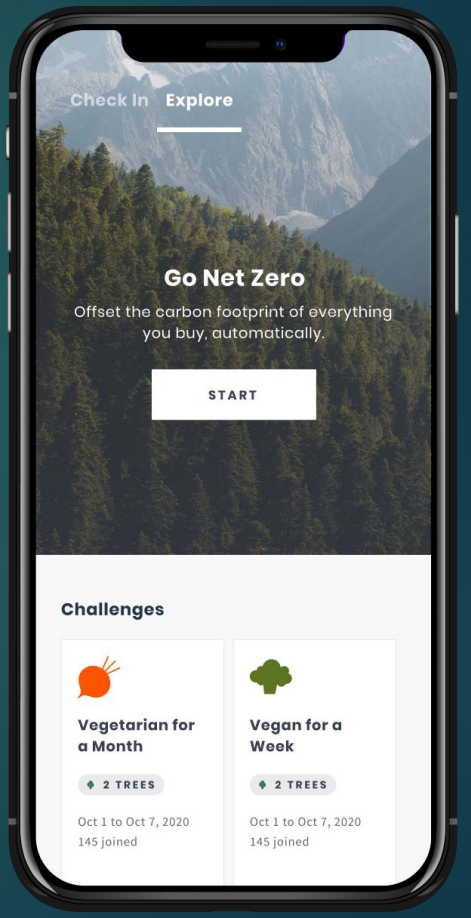
Compilation and testing of personal GHG (“Carbon Footprint”) calculators

UN carbon footprint calculator

terrapass™
RESTORE THE BALANCE

CoolClimate Network

oroeco
TURNING GREEN TO GOLD



Possible actions for reduction of GHGs from Goods & Services

- Educate and support action by residents, businesses, schools and Gov't in selection, purchasing and use of low-C goods, food, services, construction materials and investments
- Support opportunities for sharing, renting, repair, and reuse of goods, and reduction of waste (esp. food, construction materials)
- Support circular economy (thrifting, composting, construction waste, etc.)
- Promote local provision of goods and services

Current LAC actions!

LOS ALAMOS
Environmental Services

zero waste
Los Alamos

BUY NOTHING PROJECT

FRANK'S
SUPPLY COMPANY, INC.
SALES • RENTALS • SERVICE

JT APPLIANCE SERVICE, LLC

Los Alamos
Co-op Market
Good. Local. Food.

LOS ALAMOS
Department of Public Utilities
Electric, Gas, Water, and Wastewater Services

Refrigerants

- Hydrofluorocarbons (HFCs) used in refrigeration and AC contribute nearly 10% of global CO2e emissions.
  Most emissions occur at disposal.
- EPA and NM implementing rules to reduce production and importation of HFCs (85% by 2037), in accord with Kigali Agreement of Montreal Protocol.
  Kigali Agreement could prevent a full 1F degree rise in temperature!
- LAC Environmental Services extracts refrigerants from residential appliances (free!) for reuse. LANL also has recovery program. Businesses may contract to have this done (?). Lots of leakage in grocery stores.
- Opportunities for engagement:
  - Raise LAC resident awareness of issues and facilitate use of Environmental Services recovery program
  - Assist/support residents and businesses with selection of non-HFC appliances

Management of open space, soil, land use, deforestation/reforestation, carbon sinks, water, wastewater

potential recommendations currently being researched

Potential short term goals/recommendations:

- Continuing focus on **canyon restoration**.

  Money already requested and approved. Benefits:

  - restores wetlands increasing carbon sink potential
  - fire mitigation
  - water runoff filtering

- **Improve local trails/open space** for all users. CSD is already working on it. Benefits:

  - Minimizes travel of residents out of community for better trails/open space options
  - Encourages outdoor (lower carbon footprint) activities, grows connection to and appreciation of outdoors/nature and it's health
  - Provides more opportunities for health promoting activities

Potential medium term goals/recommendations:

- **Tree planting/preservation.** Consider current threats to trees and mitigate (road salting)
  - Carbon sink potential increase
  - Soil improvement
- **Water use reconsideration** by county and residents. Use caps? Safe grey water systems for residents to implement? Storm water collection options for residents/county? Benefits:
  - Saves water
  - Minimizes use of treated water for things like lawns, saving energy
- **Soil stewardship.** Subcommitte will attempt to compile recommendations of soil stewardship to use for open space and potentially in education of the community that will improve diversity of soil organisms and health of pollinators. Benefits:
  - Increases carbon sink potential of open space
  - Minimize need for water while keeping plants healthier

Potential long term goals/recommendations:

- Start a system to map, measure and **track chemical use** in county going forward. Include tests of runoff water quality in data. Test water in aquifer used to track changes if applicable. Benefits:
  - Data collected will help with accountability, detection and preventative response of unexpected contamination and show effects of current chemical use allowing optimal decision making going forward
  - Data will be needed for relevant EPA storm water permit requirements such as MS4 permits
- Collaborate with LANL groups doing **carbon capture and carbon use** e.g. currently groups working in taking CO2 from powerplants to use in green houses for food growing at higher CO2 concentrations. Consider sequestering captured carbon otherwise - soil, bedrock. Draw on having top research in our local area. Benefits:
  - Decrease in CO2 release
  - Having CO2 at 800-1000ppm (vs 400-450 ambient) in green houses will increase plant productivity, speed of growth and decrease water needs
  - Potentially involving local businesses for the work above contributing to local economy. E.g. local company that is improving LEDs for better photosynthesis in plants could be used to add to the green house efforts