

DRAFT

2011 GHG Emission Inventory



Board of Health

September 13, 2016

Why conduct a GHG Inventory?

- Our Mission – *“to protect and promote the public's health”*
- LLCHD - EPA delegated Air Quality Program - maintain compliance with National Ambient Air Quality Standards
- December 2009, EPA issued Endangerment Finding - greenhouse gases threaten the public's health – heat waves, increased air and water pollution, increased spread of diseases
- Scientific consensus - Human activities are contributing to climate change

Why conduct a GHG Inventory?

- Compare to other cities/regions
- Identify largest sources of greenhouse gas emissions in our community
- Identify areas or sources for improvement or reductions in greenhouse gas emissions
- Ensure accuracy of GHG inventory

Definitions

- Greenhouse gases (GHGs) – gases that trap heat in the atmosphere- carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride
- CO₂e = Carbon Dioxide Equivalent. A particular gases' global warming potential over 100 years relative to carbon dioxide
- ICLEI = International Council for Local Environmental Initiatives
- Metric ton - @2200 pounds
- Biogenic CO₂ emissions - CO₂ emissions related to the natural carbon cycle, as well as those resulting from the combustion of biologically based materials – combustion of landfill gas
- VMT – Vehicle miles traveled

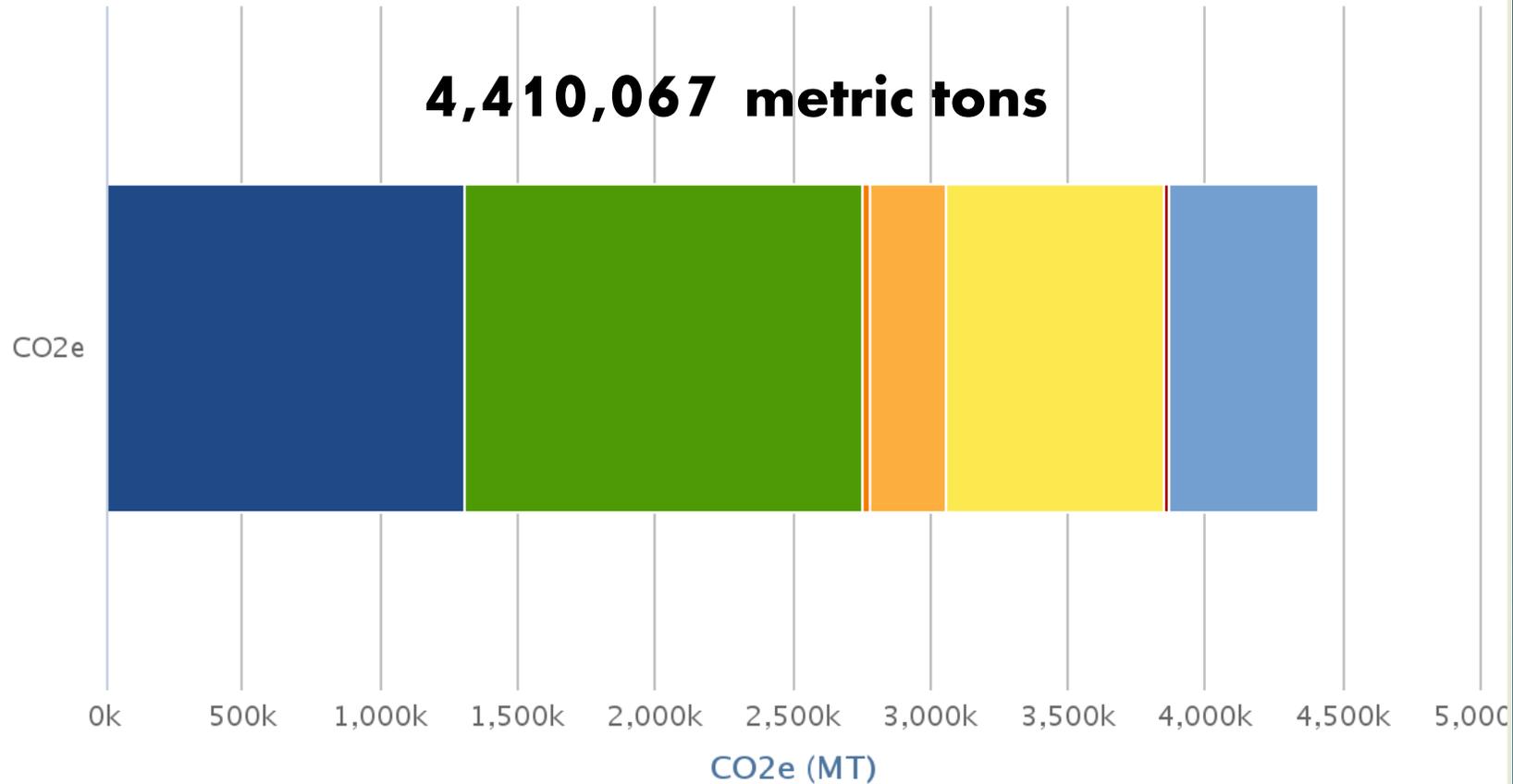
Methodology

- Utilized ICLEI's ClearPath software
 - "Easy" to use web-based software to measure greenhouse gas emissions.
- Conducted a community-based greenhouse gas inventory – Lincoln's city limits
- Gathered data for calendars years 2011 and 2014
- Worked with many sources and business – obtain accurate data

Methodology

- Inventoried CO₂, CH₄, and N₂O emissions
- Does not include emissions from SF₆, CFCs or PFCs
- Calculated CO₂e for
 - Carbon Dioxide (CO₂) = 1
 - Methane (CH₄) = 21
 - Nitrous Oxide (N₂O) = 310

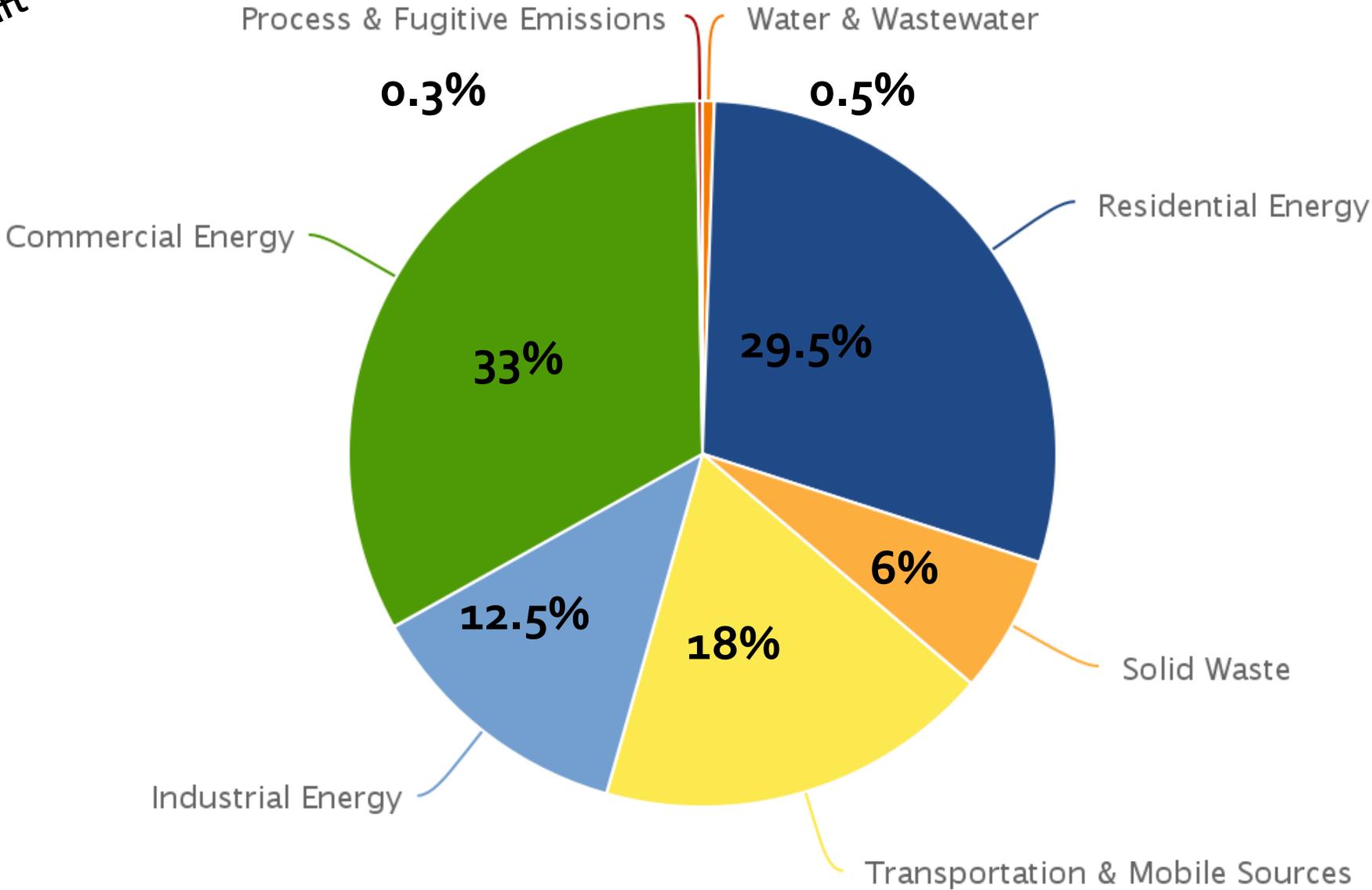
Total GHG Emissions



Residential Energy Commercial Energy Water & Wastewater Solid Waste
Transportation & Mobile Sources Process & Fugitive Emissions Industrial Energy

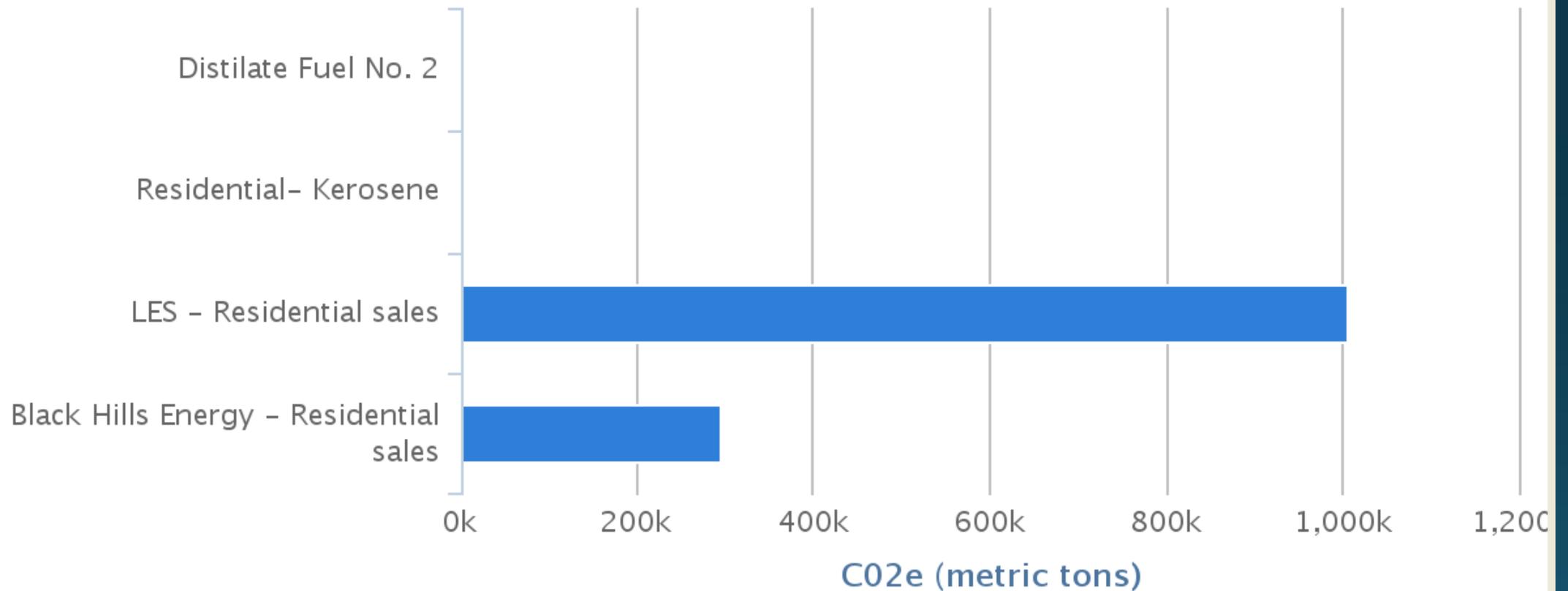
CO2e across all categories for current inventory

draft



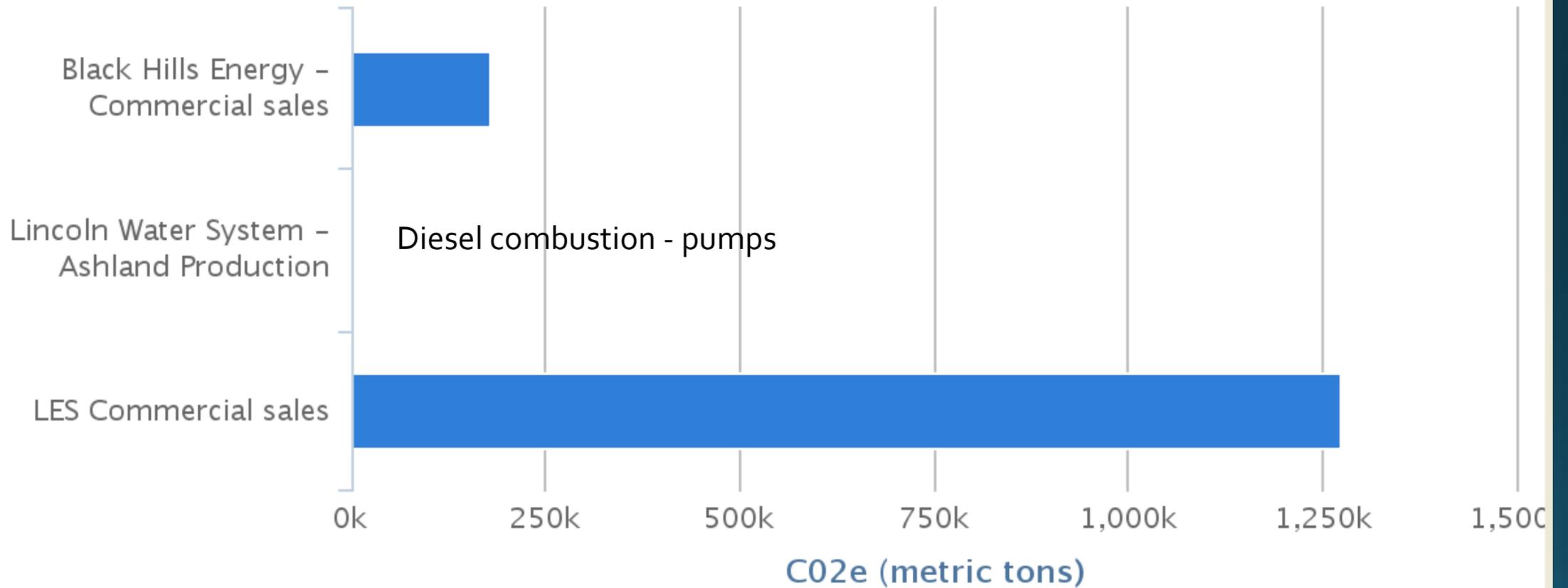
Residential Energy 1.3 M metric tons

CO2e for Current Category



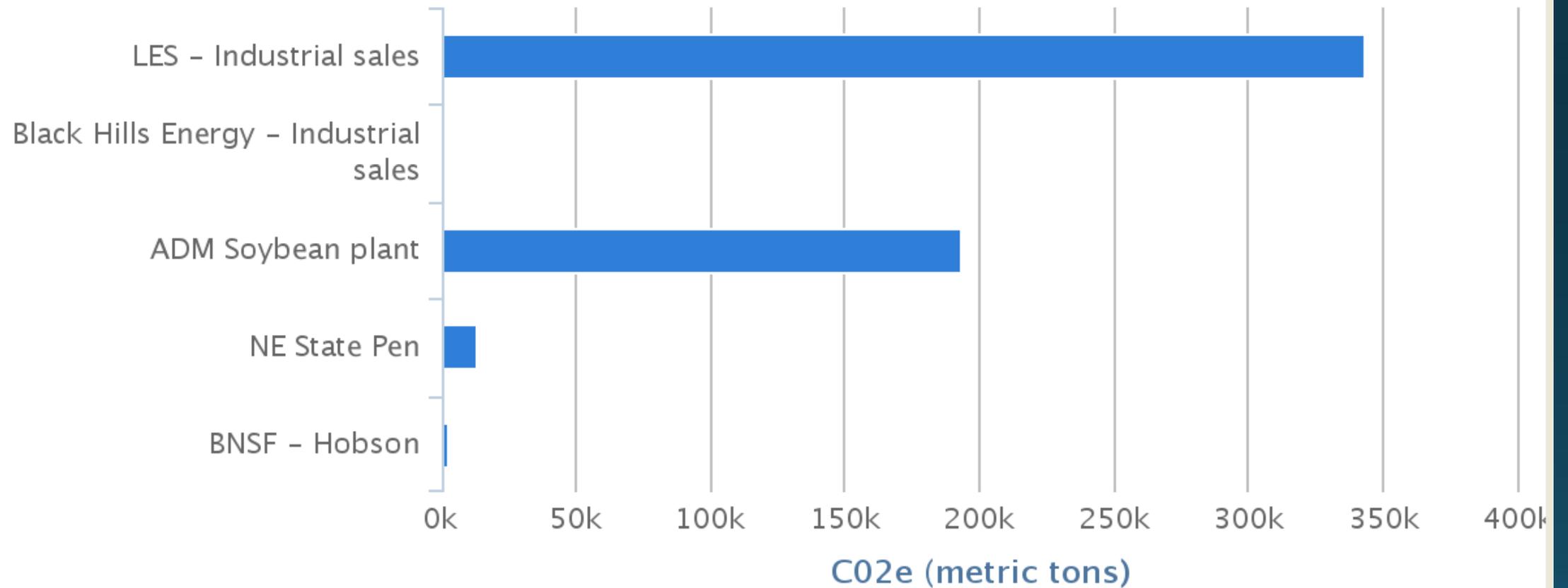
Commercial Energy 1.45 M MT

CO2e for Current Category

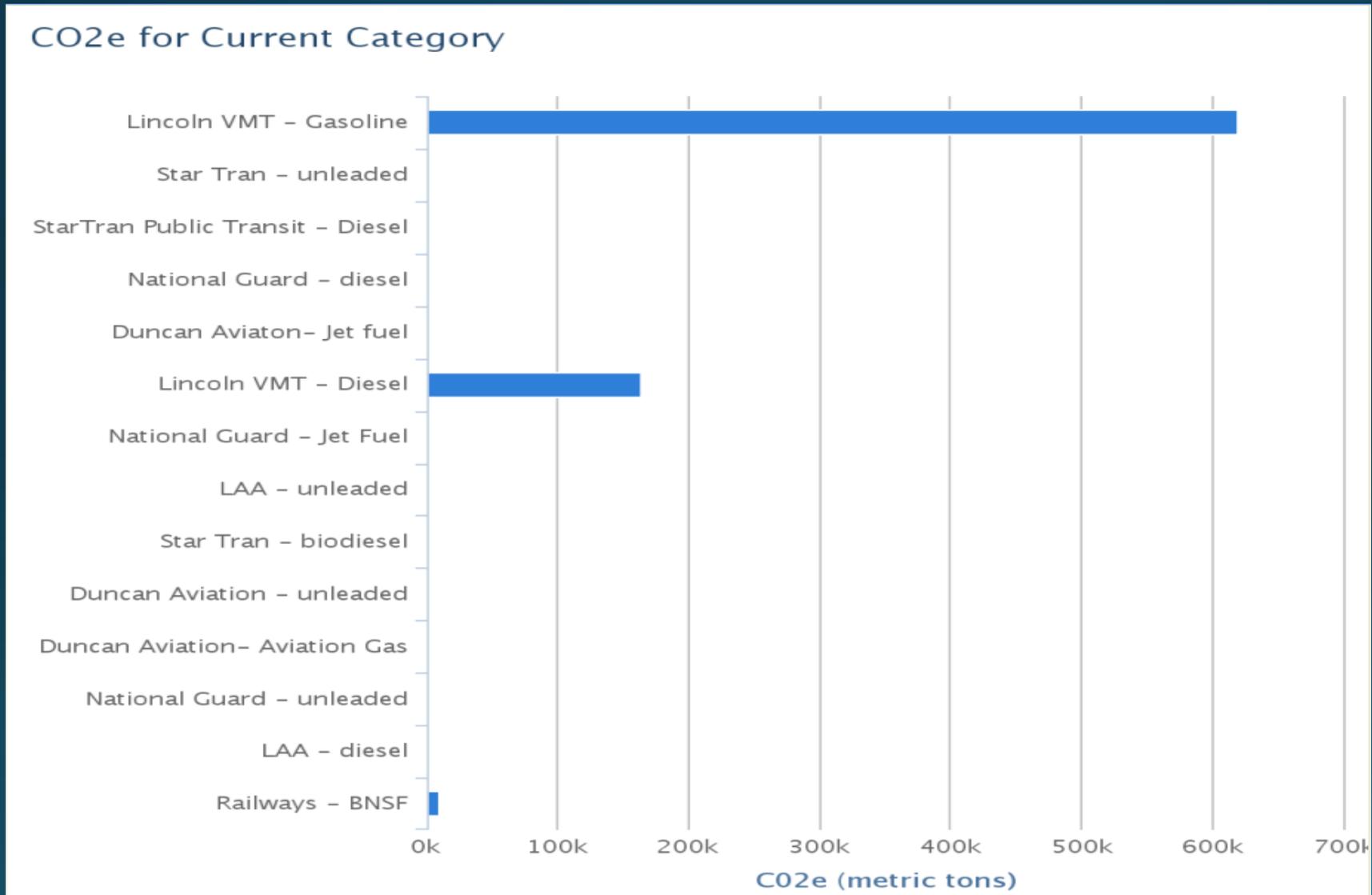


Industrial Energy 551 K MT

CO2e for Current Category

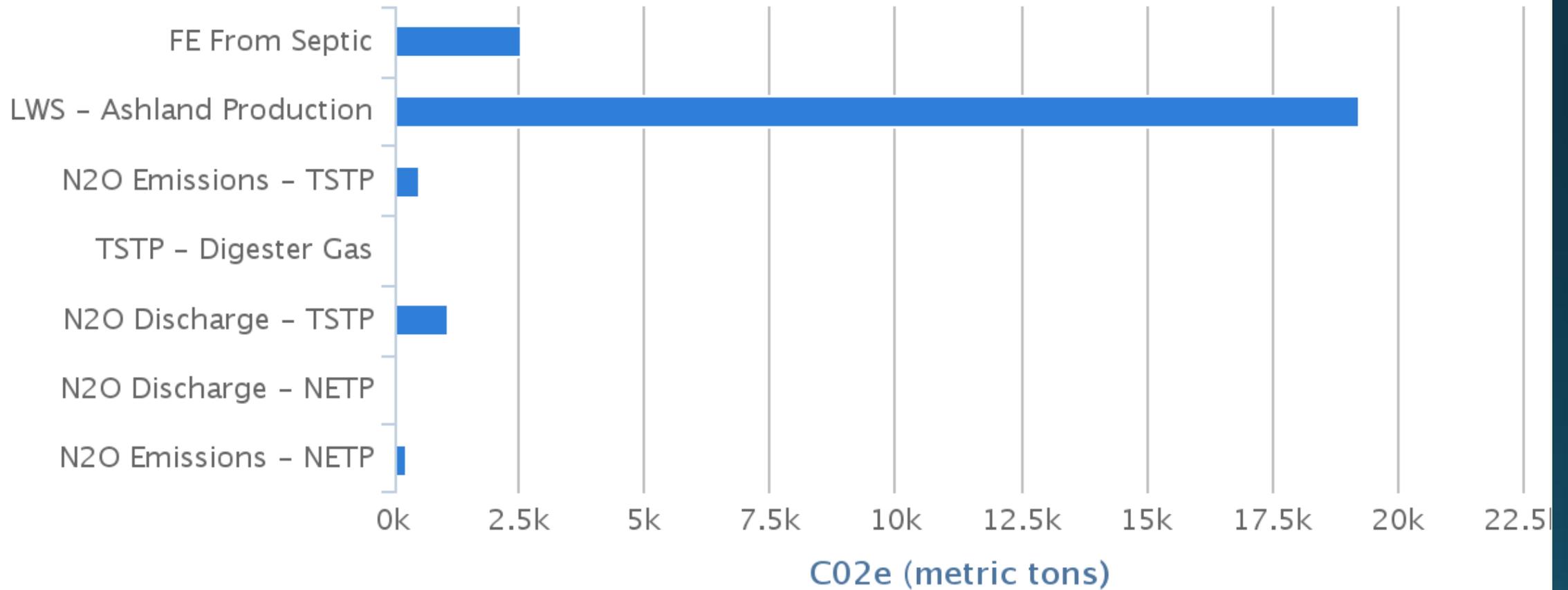


Transportation & Mobile Sources 800 K MT



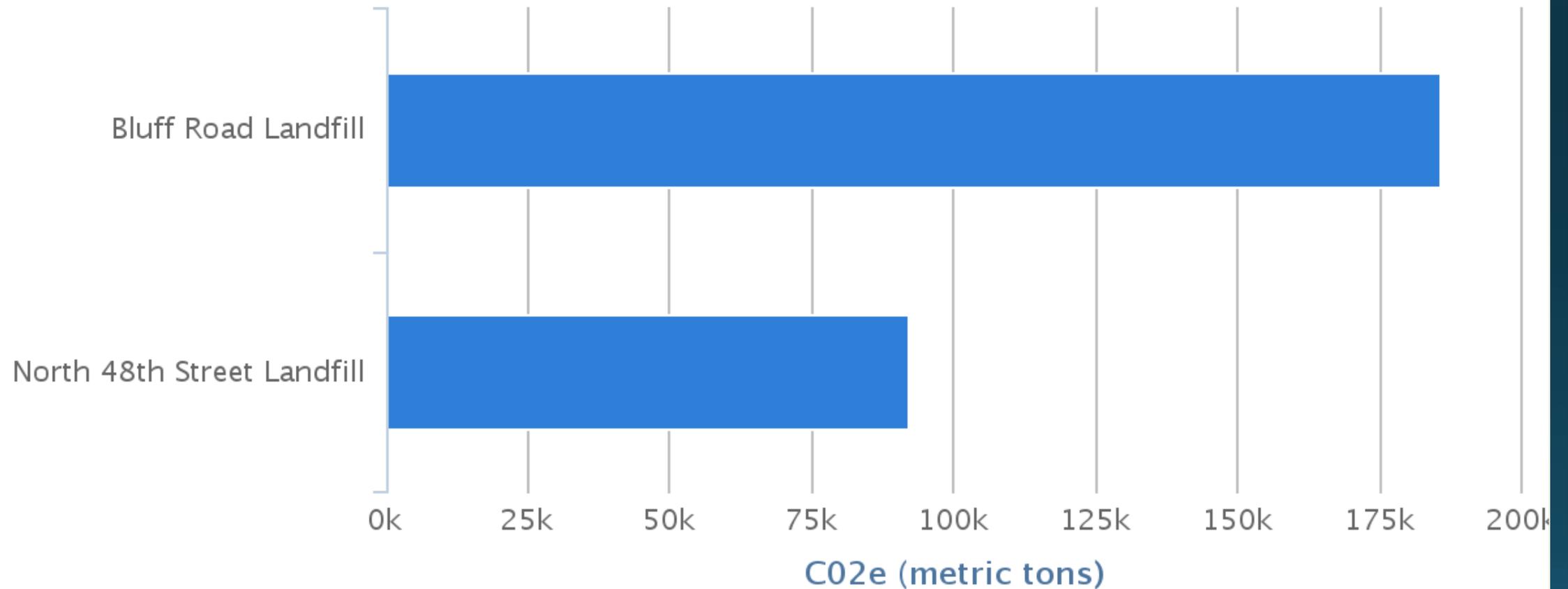
Water & Wastewater 23.5 K MT

CO2e for Current Category



Solid Waste 278 K MT

CO2e for Current Category



Largest Sources....CO₂E

- Heating and Cooling – Commercial Buildings
- Heating and Cooling – Residential Buildings
- Mobile Sources – Lincoln VMT – 95% of transportation emissions
 - 1,514,750,000 annual VMT

GHG Reductions...

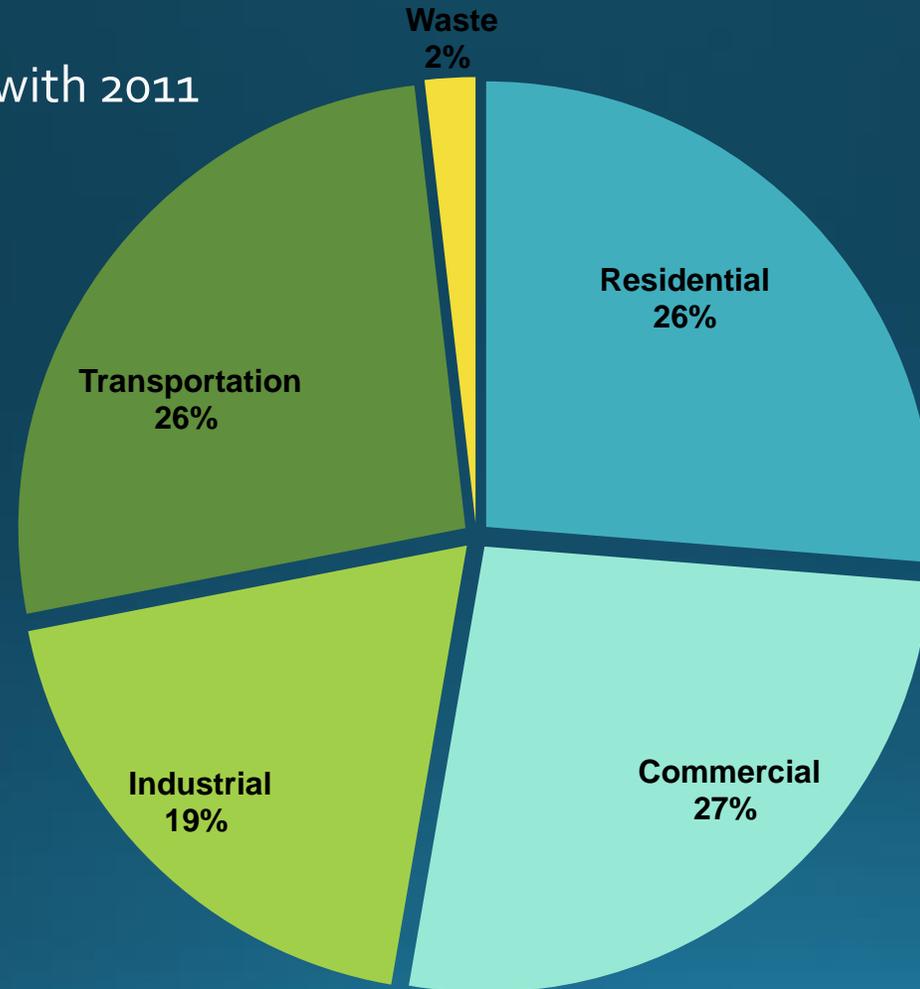
- Reduce traffic congestion
 - Green Light Lincoln Program - improve traffic flow and traffic safety city wide
- Encourage alternative modes of transportation
 - Improved mass-transit network
 - City's Complete Streets effort
- Residential and Commercial – energy efficiencies
- LES – energy mix – reduce CO₂ lb/kWhr
 - 2011 1.93 vs. 2014 1.49

Additional Work...

- Airport – local attribution
- Model off-road emissions
- Final vetting of data

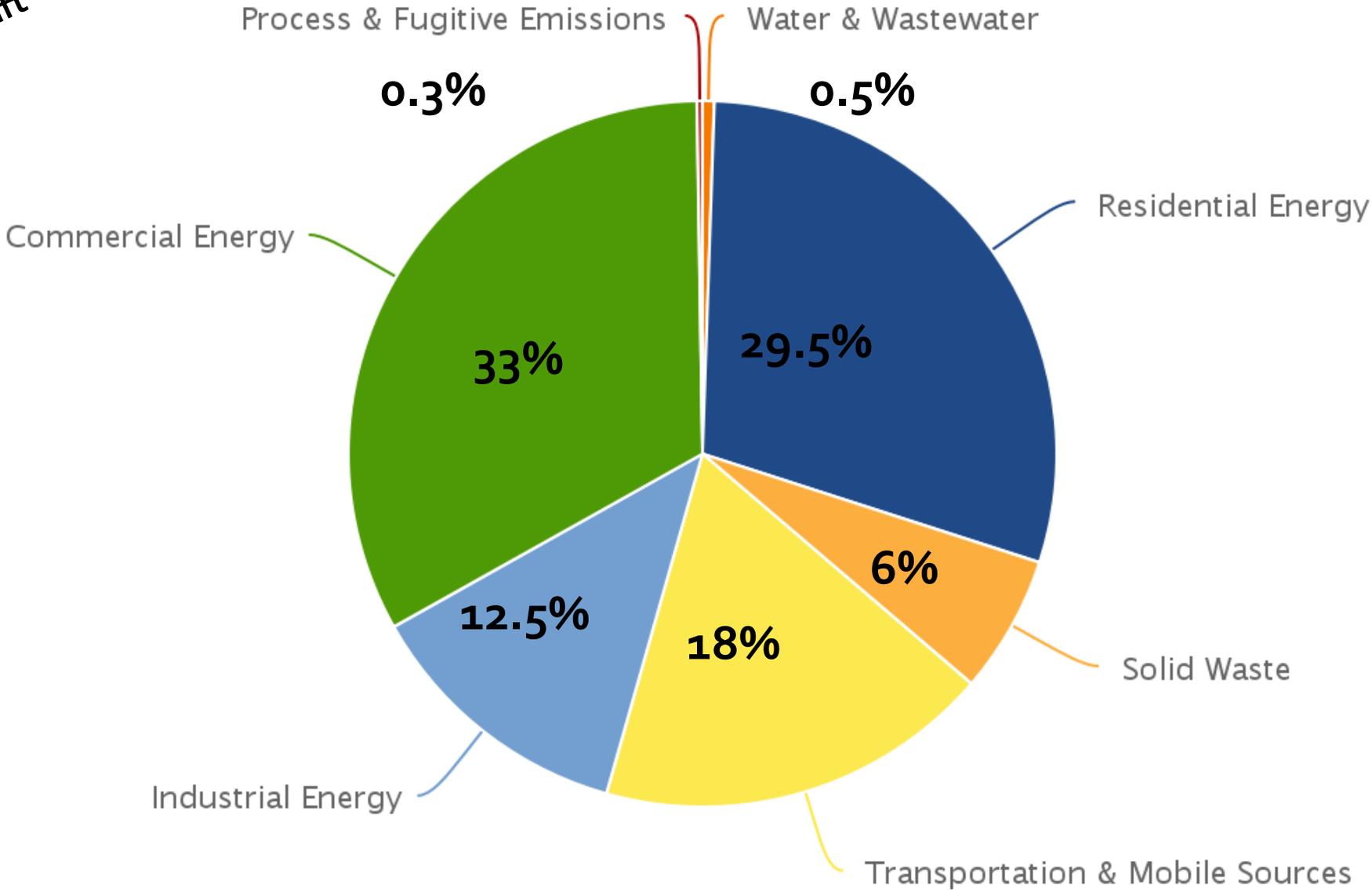
Lincoln 2008- 4,775,088 tons CO₂e

Not to be compared with 2011



CO2e across all categories for current inventory

draft



Questions?