New Jersey Non-CO_2 GHG Emissions:
Brief Status Overview

New Jersey Clean Air Council Public Hearing

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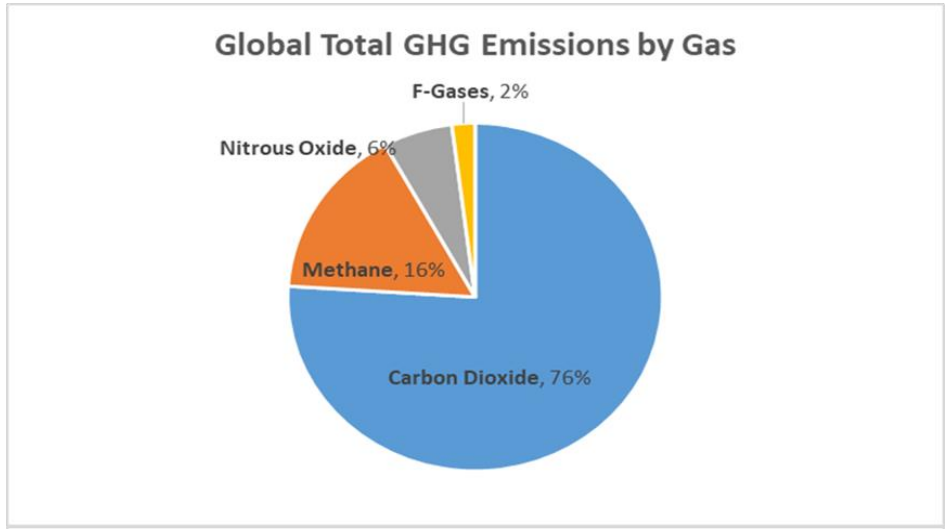
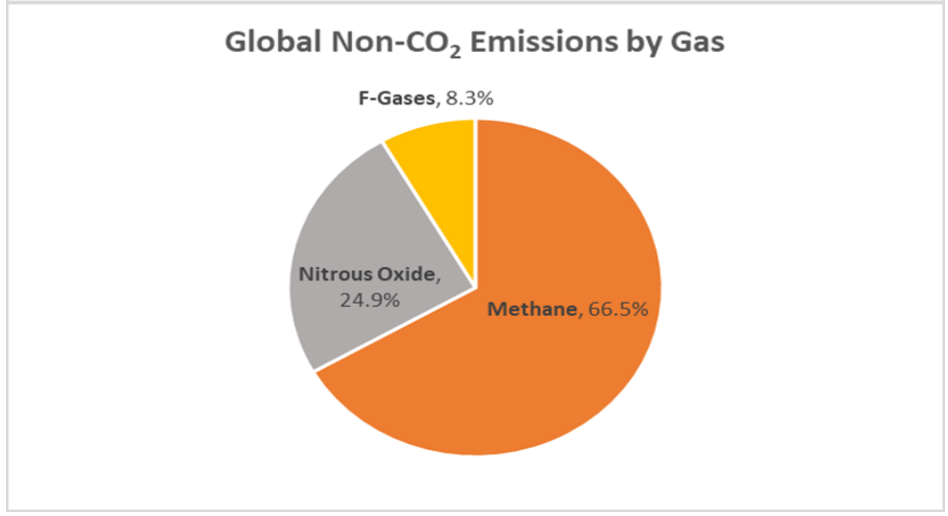
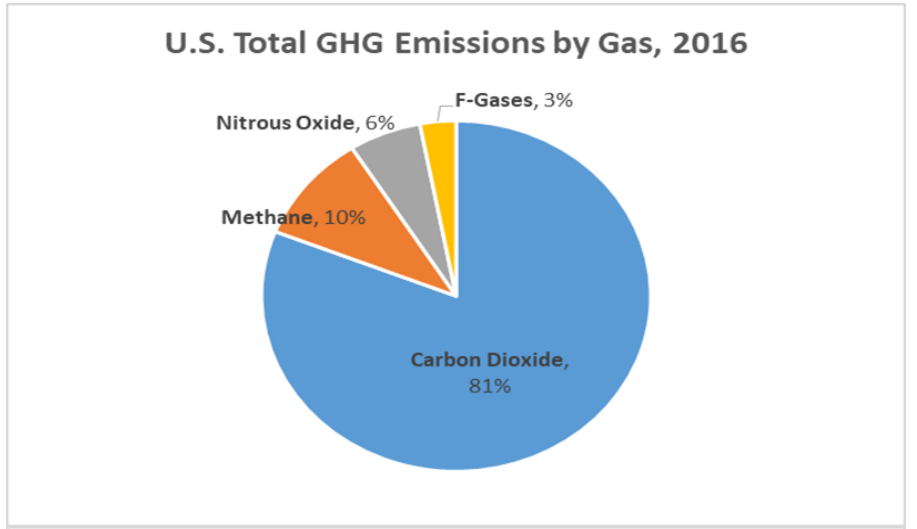
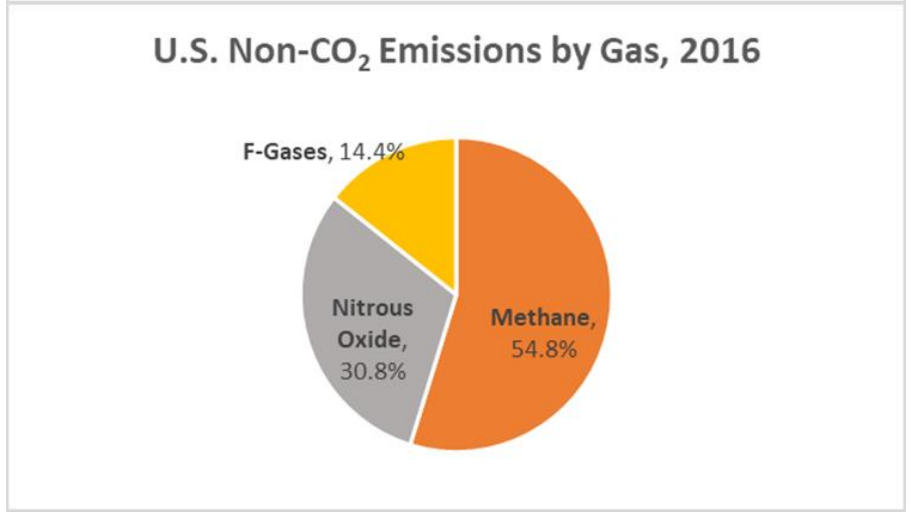
GLOBAL AND FEDERAL GHG EMISSIONS by GAS





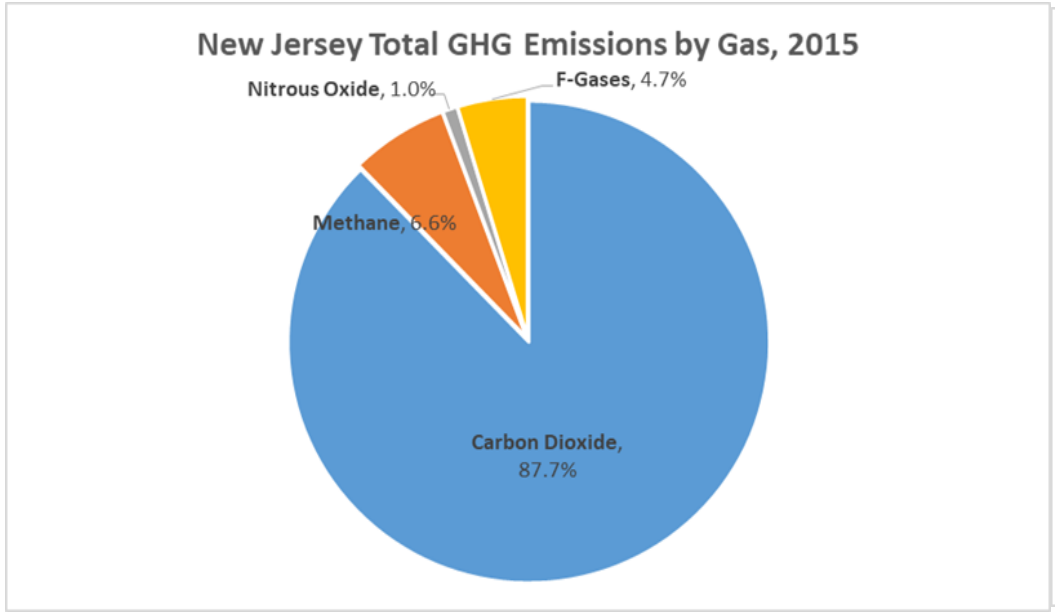
Source: IPCC (2014) based on global emissions from 2010. Details about the sources included in these estimates can be found in the *Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*.

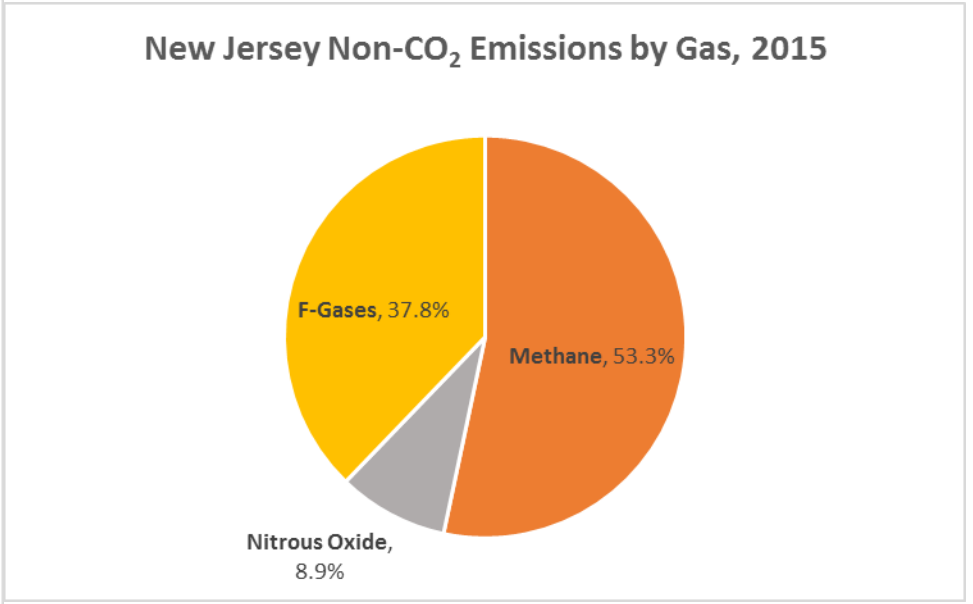




Source: U.S. Environmental Protection Agency (2018): *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016.* EPA 430-R-18-003

NEW JERSEY STATE GHG EMISSIONS BY GAS





Source: New Jersey Department of Environmental Protection (2017): *2015 Statewide Greenhouse Gas Emissions Inventory.*

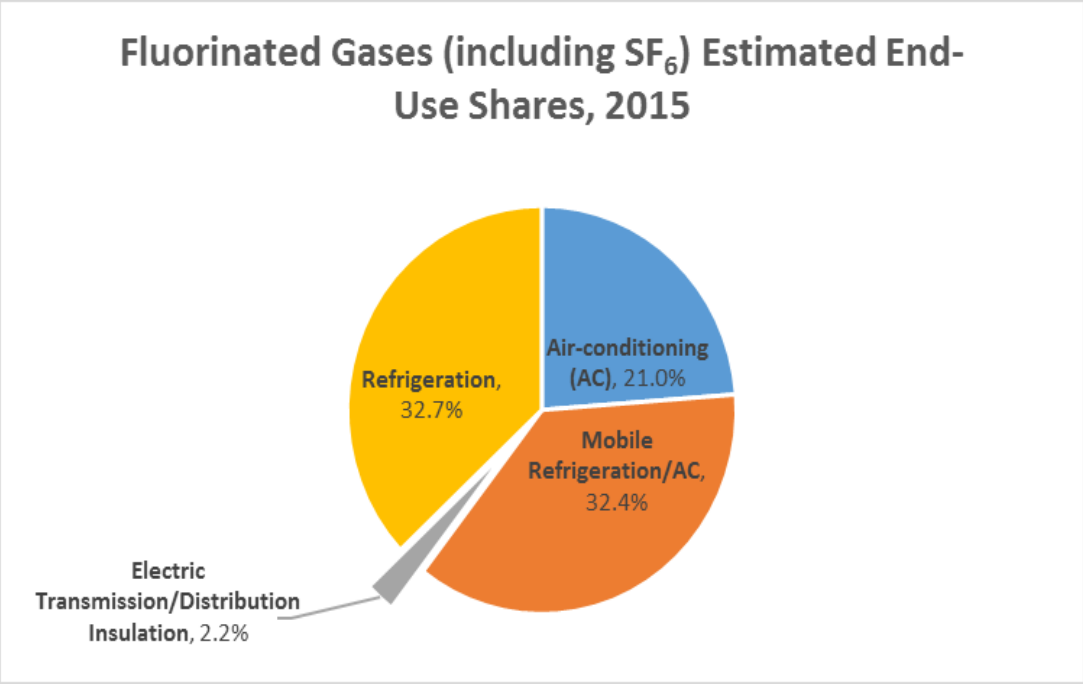
METHANE

Source Category	Estimated Share in CH_4 Emissions, 2015
Waste Management (landfills)	68.40%
Waste Water Treatment	0.14%
Agriculture	1.18%
Natural Gas Transmission and Distribution	30.09%
Stationary Combustion	0.19%

Source: New Jersey Department of Environmental Protection (2017): *2015 Statewide Greenhouse Gas Emissions Inventory*.

- **Methane (CH_4)** – Primary sources (waste and agriculture; fossil fuel transmission and combustion) adequately covered.
- Need for improved natural gas leak detection and estimation methods.
- Natural emissions from wetlands and other natural sources (~30% of global CH_4 budget) not encompassed by current inventory.
- Scientific uncertainty regarding role of CH_4 as source or sink in natural systems needs to be addressed by research community.

Fluorinated Gases



Source: California Air Resources Board (2018): *Current and Projected Emission Inventory and Methodology of HFC-Gases, Black Carbon, and Methane in California and Other U.S. Climate Alliance States*. Draft Final.

- **Fluorinated Gases (HFCs, PFCs, and SF_6)** – No direct data from in-state facilities; derived from national estimates using population and state electricity consumption (for SF_6) as scaling factor.
- State's direct access to production, import, and export data as well as the complexity of the USEPA's *Vintaging* model* covering 67 end-uses are key areas of concern (*model used to estimate F-gas emissions).

NITROUS OXIDE

Sources	Estimated 2015 Emissions (MMTCO2e)
Animal Manure Management (enteric fermentation)	0.010
Agricultural Soils Management (fertilizers, crop residues)	0.250
Solid Waste Landfills	0.019
Wastewater Treatment	0.270
Mobile Combustion	0.133
Stationary Combustion	0.070

Source: New Jersey Department of Environmental Protection (2017): *2015 Statewide Greenhouse Gas Emissions Inventory*.

- **Nitrous Oxide (N_2O)** –Currently not directly reported in NJDEP emissions statement database.
- Mainly from agricultural activities and USDA data sufficiently covers State situation. Some emissions generated in fossil fuel combustion indirectly estimated.

BLACK CARBON

Potential Sources of Black Carbon in NJ
On-Road
Energy and Power Generation
Off-Road: Equipment
Off-Road: Marine + Aircraft + Locomotive
Residential: Wood Burning
Commercial Cooking
Industrial Processing
Wildfires
Agricultural Burning
Prescribed Burning
Residential: Other Fuel Burning
Waste Disposal

Source: California Air Resources Board (2018): *Current and Projected Emission Inventory and Methodology of HFC-Gases, Black Carbon, and Methane in California and Other U.S. Climate Alliance States*. Draft Final.

- **Black Carbon (BC) –** Particle or aerosol (not gas) that remains in the atmosphere for a few days or weeks. While now recognized as also contributing to global warming, BC is presently not included in GHG inventories. Data could possibly be extracted from air emission inventories.
- Due to significant distillate fuel use in the State this may have to be considered but it should be noted that GWP for biomass black carbon is 50% higher than GWP for distillate black carbon.