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Department of
the Environment

Reducing Methane Leakage in Maryland

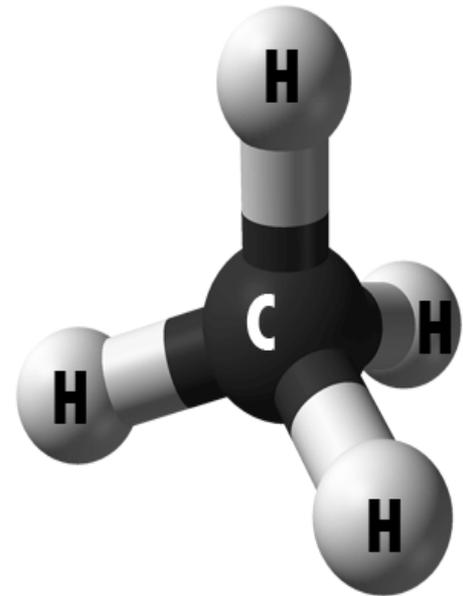


Air Quality Control Advisory Council (AQCAC)

December 12, 2016

Discussion Topics

- Background
 - Maryland Climate Change Commission
 - Greenhouse Gas Emission Reduction Act
- Why the concern over methane?
- Methane emissions in Maryland
 - How does Maryland compare to national methane emissions
- MDE Initiatives in 2017
- Recent EPA Efforts
- Next Steps



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Maryland Commission on Climate Change (MCCC)

- Originated in 2007
- Developed 2008 Maryland “Climate Action Plan”
- This led to the “Greenhouse Gas Emission Reduction Act” of 2009 or GGRA
- Commission codified into law in 2015
 - Recommended enhancements to the 2009 GGRA in December of 2015
- GGRA of 2016 signed into law in April 2016
- Basic charge of the Commission:
 - Provide recommendations on how to reduce greenhouse gas emissions and adapt to the impacts of climate change



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Greenhouse Gas Emission Reduction Act (GGRA)

- Originally adopted in 2009
- Required that Maryland develop and implement a plan to reduce greenhouse gas (GHG) emissions by 25% by 2020
- The law also requires that the plan support a healthy economy and create new jobs
- Refreshed by the General Assembly in 2016 to add an additional goal for 2030
 - 40 % GHG reduction by 2030
 - Same focus on the economy and jobs



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2016 MCCC Recommendations

- On November 15, 2016 the MCCC issued its annual report
- The report included over forty recommendations on mitigation, adaptation and education, communication and outreach
- One was specific to in-state methane emission reductions:
 - *“... the MCCC supports MDE’s efforts to reduce methane emissions from landfills, natural gas infrastructure (e.g. compressor stations and underground storage), and waste water treatment plants, and recommends further research into additional sources such as agriculture and fuel production/transport”.*



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Methane – The Basics

- Methane (CH₄) is the second most prevalent greenhouse gas (GHG) emitted in the U.S. from human activities
- The atmospheric lifetime of methane is much shorter than carbon dioxide (CO₂)
- On a per unit basis, methane is at least 25 times more potent at trapping heat in the atmosphere than CO₂ over a 100 year period, and about 72 times more potent over a 20 year period
- According to the EPA, methane accounted for about 10.6% of all U.S. greenhouse gas emissions in 2014



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Why the Concern over Methane?

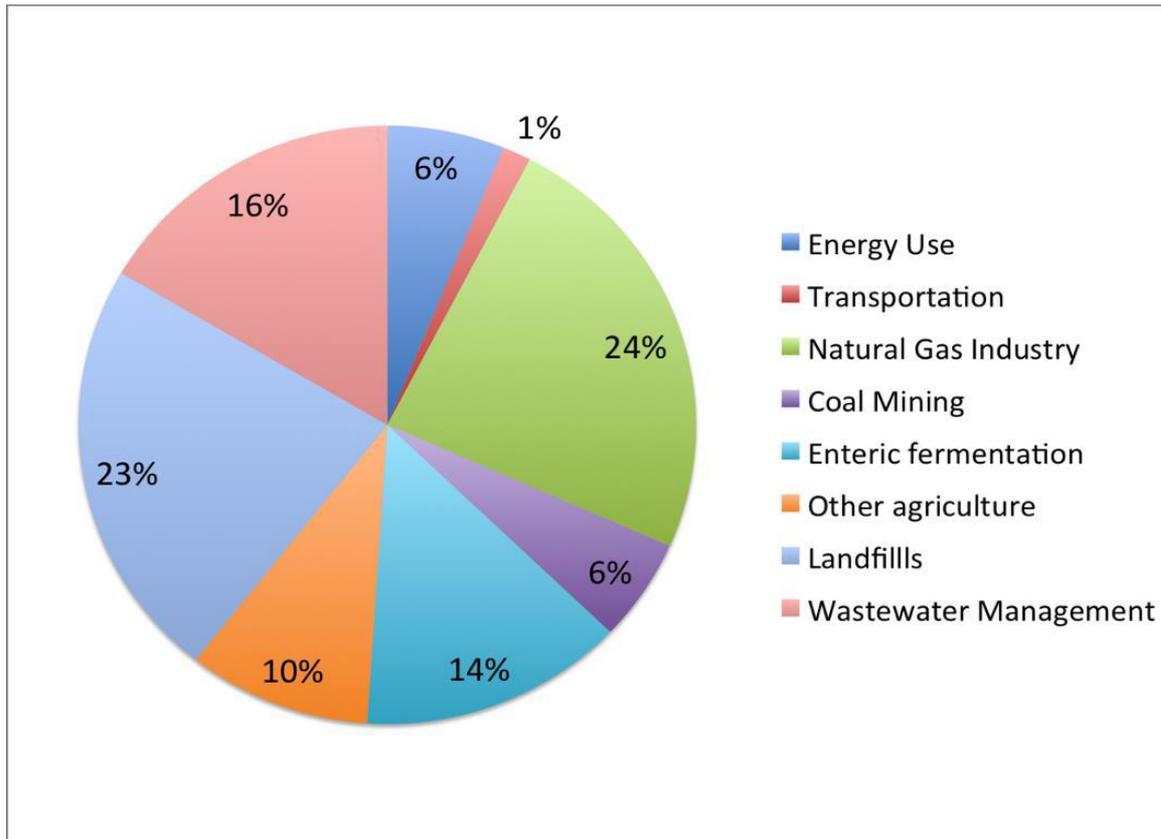
- Maryland and many other parts of the United State are making significant progress in reducing the primary GHG -- CO₂
- This is partially linked to shifts in the energy sector driven by low cost natural gas
 - Natural gas is primarily composed of methane
- Hydraulic fracturing and other processes linked to natural gas have resulted in more methane leaking into the atmosphere
- Significant effort is under way to determine how much of the GHG emission reduction progress being made is negated because of methane leakage



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Maryland Methane Emissions

Maryland Methane Emissions, By Source

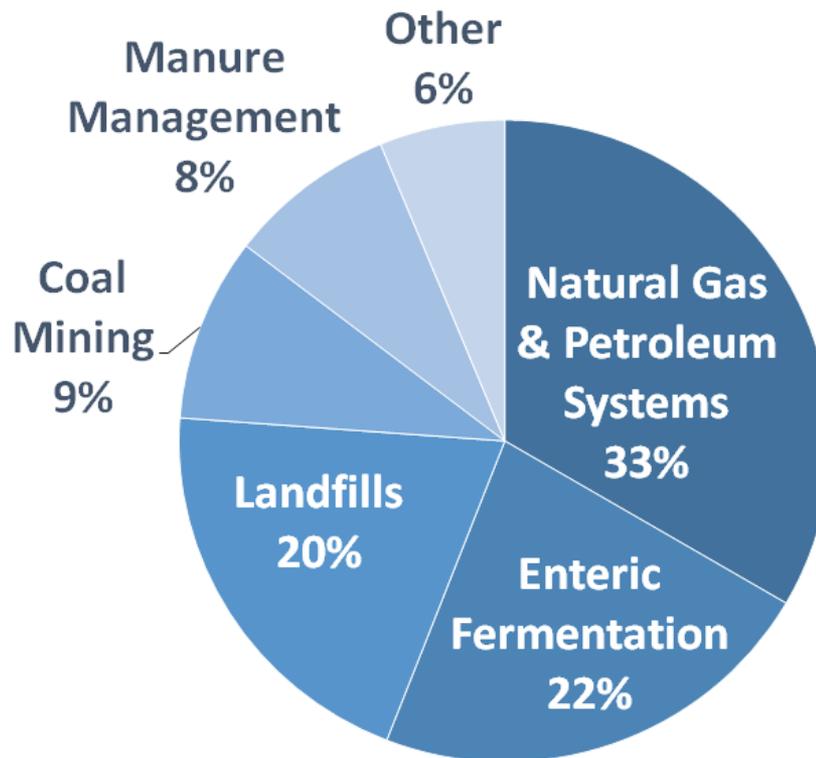


Sources of methane emissions in Maryland based on the Maryland Department of the Environment's 2014 GHG Emissions Inventory.



National Methane Emissions

U.S. Methane Emissions, By Source



U.S. Environmental Protection Agency (2014).
U.S. Greenhouse Gas Inventory Report: 1990-2014.



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Reducing Methane Leakage in Maryland

- MDE has conducted research and looked at current and future emissions and has prioritized 3 source categories for the first round of regulatory action to tighten up requirements related to leaking methane
 - Landfills
 - Compressor Stations
 - Wastewater Treatment Plants
- EPA is also working on Landfills and Compressor Stations



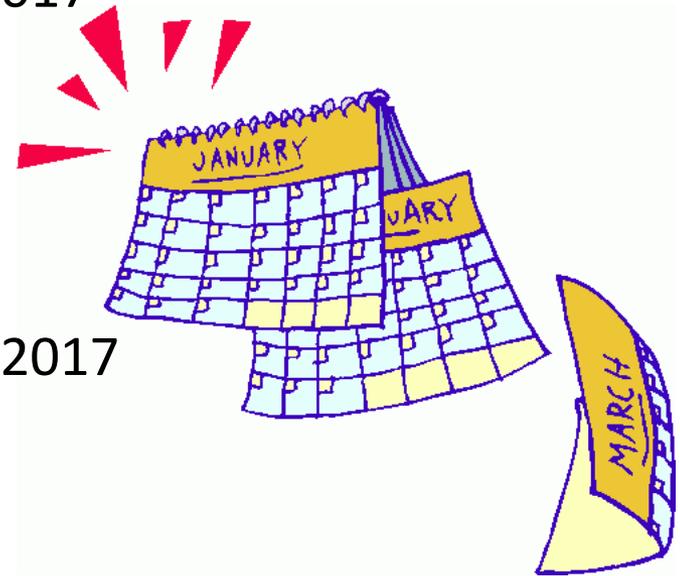
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EPA Initiatives

- Landfills
 - On August 29, 2016, EPA announced final updates and issued guidelines to reduce emissions of methane-rich landfill gas from new, modified, reconstructed and existing landfills.
- Compressor Stations
 - In 2016 EPA took several actions to reduce methane emissions from the oil and natural gas industry
 - Some of these actions include compressor stations
- MDE will be using the EPA efforts as a starting point for state regulations

Schedule

- Landfills
 - Initial Stakeholder Meeting – January 2017
 - Additional stakeholder meetings
 - Regulation Adoption – Late 2017
- Compressor Stations
 - Initial Stakeholder Meeting – February 2017
 - Additional stakeholder meetings
 - Regulation Adoption – 2018
- Wastewater Treatment Plants
 - Initial Stakeholder Meeting - February 2017
 - Additional stakeholder meetings
 - Regulation Adoption – 2018



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Questions

