



Maryland
Department of
the Environment

Minimizing Methane Emissions from Natural Gas Compressor Stations and other Related Equipment



Joshua Shodeinde and Tad Aburn, MDE
AQCAC Meeting - September 16, 2019



Today's Briefing

- One of two major climate change regulations we will be taking to AQCAC on December 16, 2020 for approval
- Today - Just a short preview
- Final Stakeholder Meeting on October 11th
- AQCAC members are invited to final stakeholder meeting and can review materials from past MDE stakeholder meetings at <https://mde.maryland.gov/programs/regulations/air/Pages/ARMARegulationsStakeholders.aspx>
- This is supposed to be a fifteen minute preview ... the topic is interesting and important so MDE will work with AQCAC Chair to manage discussion



Why is MDE Pushing this Issue

- Maryland has one of the country’s most aggressive programs to address climate change
- Methane is a highly potent greenhouse gas that needs to be acted upon quickly because it is a short-lived climate pollutant (SLCP)
- Leaking methane has been identified by researchers and regulators as a major issue that needs to be addressed
 - Reducing in-state methane leakage is a high priority

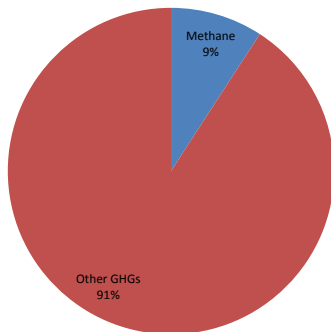


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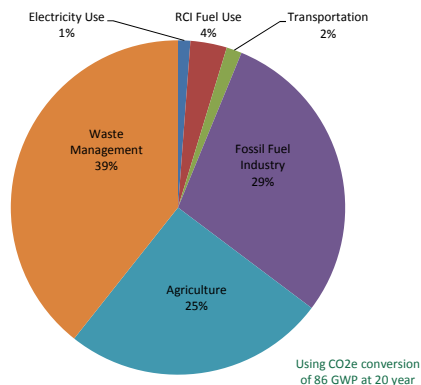


Methane Emissions in Maryland

All GHGs (2017)

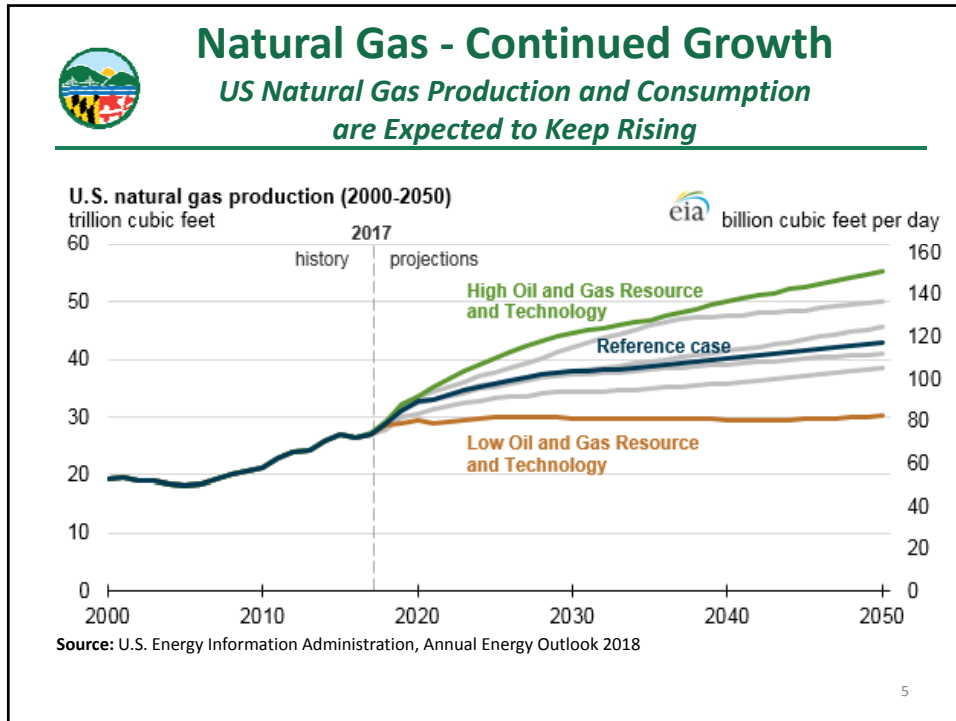


Methane Breakdown (2017)



- MDE is also working on regulations to reduce leaking methane from landfills and wastewater treatment plants

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The Greenhouse Gas Emission Reduction Acts (GGRA) of 2009 and 2016

- Originated in 2007 by Executive Order which resulted in a 2008 “Climate Action Plan”
- This led to the “Greenhouse Gas Emission Reduction Act” of 2009
 - 25 % Greenhouse Gas (GHG) Emission reduction by 2020
- 2009 law reauthorized in 2016 ... new goals added
 - 40 % GHG reduction by 2030
- The acts also require that the State’s GHG reduction plans support a healthy economy and create new jobs



The Maryland Commission on Climate Change (MCCC)

- MCCC codified into law in 2015
- Establishes a balanced, bipartisan Commission
 - Representatives from state and local government, the private sector, environmental advocacy groups, labor, the general public and more
- Basic charge of the Commission:
 - Provide recommendations on how to reduce GHG emissions and adapt to the impacts of climate change
- Full Commission and four working groups (Mitigation, Adaptation, Science and Communications) meet routinely
 - All meetings open to public
- MCCC has recommended that reducing in-state methane leakage be a very high priority



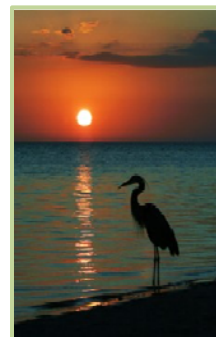
<https://mde.maryland.gov/programs/Air/ClimateChange/MCCC/Pages/index.aspx>

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The U.S. Climate Alliance

- Maryland joined the U.S. Climate Alliance (USCA) on January 10, 2018
 - Originally, an alliance of 12 states ... now 25 states
- Basic mission ... to meet the goals of the Paris Climate Agreement ... at least 26-28 percent below 2005 levels by 2025
- Multiple working groups ... one focused on SLCP
 - Pushing efforts to reduce methane, hydrofluorocarbons (HFCs) and black carbon
- Besides our work on methane, Maryland is joining other states like CA, and NY to adopt 2019 regulations to phase out the use of HFCs



www.usclimatealliance.org/

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Shifting EPA Requirements

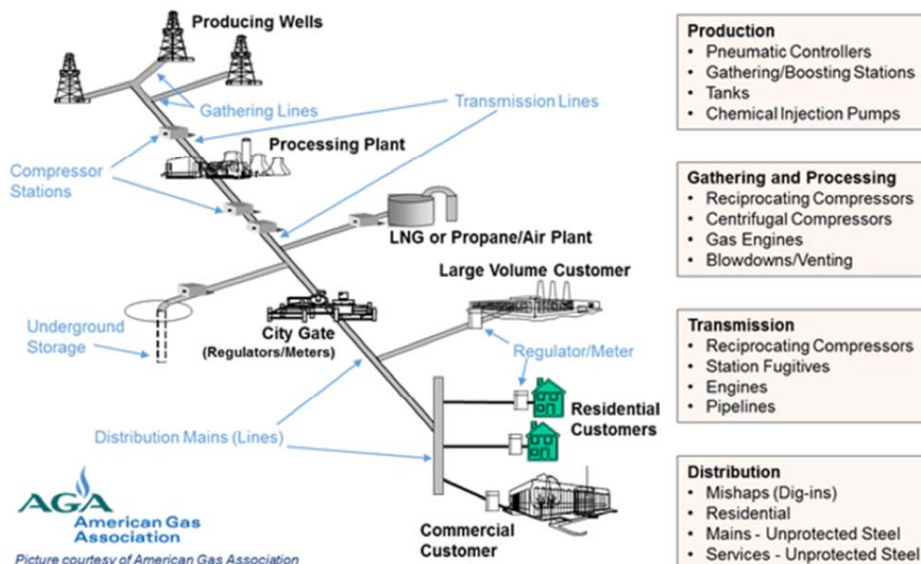
- From 2014 to 2016, EPA was working to tighten methane emission reduction requirements
 - 2016: NSPS OOOOa also called “Quad Oa”
 - 2016: Control Technology Guideline (CTG) for existing sources finalized

- More recently EPA has moved to relax emission reduction requirements
 - 2018 proposal to repeal 2016 CTG
 - 2018 and 2019 ... EPA proposed relaxations to Quad Oa

- Maryland working with other states to challenge more recent relaxations
 - Reducing methane is not just a Maryland issue

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Oil and Natural Gas Industry in General



Source: <https://www.epa.gov/natural-gas-star-program/overview-oil-and-natural-gasindustry#sources>

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Oil and Natural Gas Industry in General

Ban on hydraulic fracking

Producing Wells

Gathering Lines

Processing Plant

Transmission Lines

Compressor Stations

LNG or Propane/Air Plant

Large Volume Customer

City Gate (Regulators/Meters)

Residential Customers

Commercial Customer

Underground Storage

Distribution Mains (Lines)

Regulator/Meter

Production

- Pneumatic Controllers
- Gathering/Boosting Stations
- Tanks
- Chemical Injection Pumps

Gathering and Processing

- Reciprocating Compressors
- Centrifugal Compressors
- Gas Engines
- Blowdowns/Venting

Transmission

- Reciprocating Compressors
- Station Fugitives
- Engines
- Pipelines

Distribution

- Mishaps (Dig-ins)
- Residential
- Mains - Unprotected Steel
- Services - Unprotected Steel

AGA
American Gas Association

Picture courtesy of American Gas Association

Source: <https://www.epa.gov/natural-gas-star-program/overview-oil-and-natural-gasindustry#sources>

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Oil and Natural Gas Industry in General

These are the sections covered by the draft regulation

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Processing Plant

Transmission Lines

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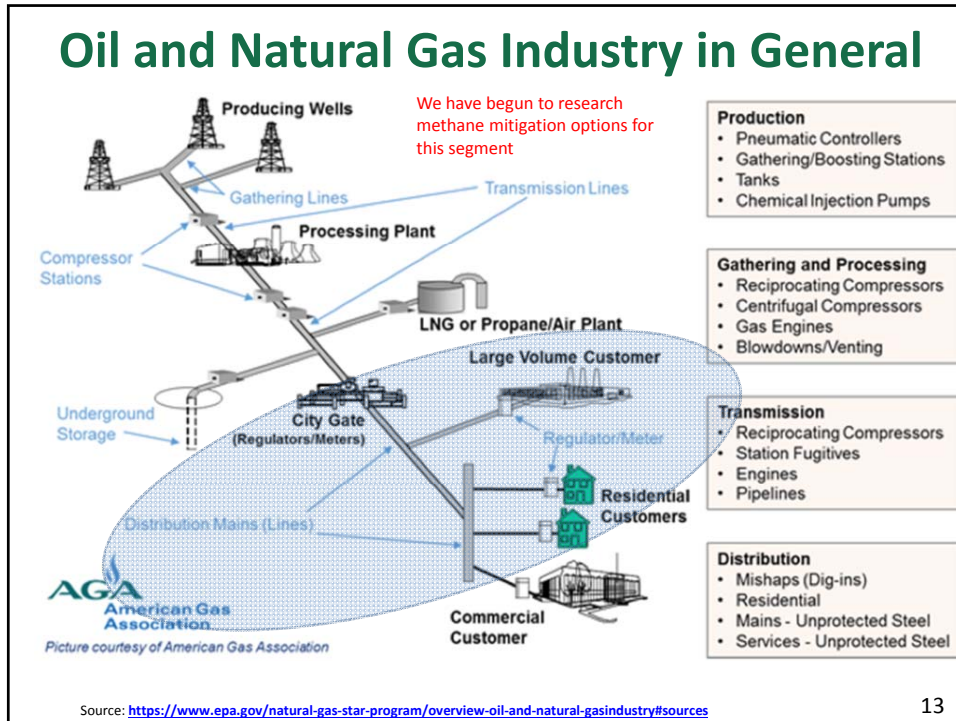
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The Draft Regulations

Applicability

- Existing and “Any new, modified, or reconstructed natural gas compressor station, natural gas underground storage facility, or liquefied natural gas station.”
- Four compressor stations
 - Dominion, Myersville
 - TransCanada, Rutledge
 - Transco, Ellicott City
 - Texas Eastern, Accident
- One underground storage facility
 - Texas Eastern, Accident
- One import and liquefaction/export facility
 - Dominion, Cove Point

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Draft Regulations Overview of Key Requirements

- Stakeholder draft of the regulation was built from the best of existing methane regs in other leadership states like California and Colorado
 - Borrowed from EPA 2016 Quad Oa
 - Includes many stakeholder comments
- It includes state-of-the-art control techniques for:
 - Leaking pipes ... this is the main driver of emission minimization in the rule at natural gas facilities
 - Equipment used at the facility to move and manage the natural gas, like reciprocating engines and pneumatic devices
- It also includes requirements for:
 - Blowdown events at compressor stations
 - Compliance and emissions reporting
- Draft discussion version of the regulation shared to stakeholders is in your package
 - Regulation for 12/16 AQCAC likely to be updated

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MDE's Stakeholder Process

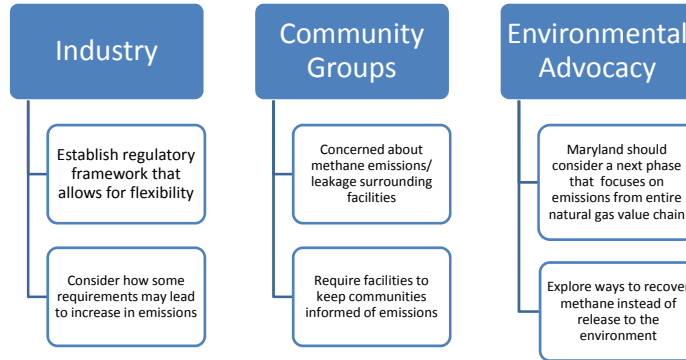


- MDE has also been meeting with affected businesses, communities, environmental advocacy groups and other stakeholders in 1-on-1 meetings or calls since 2017

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In General, What Have We Heard from Stakeholders?



- Stakeholder input has been very helpful.
- Process started off with less collegial discussions
- Last few meetings have been very positive

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Schedule

- Next stakeholder meeting:
October 11, 2019
- Present to AQCAC for Approval:
December 16, 2019
- Public hearing:
June 2020
- Rule Adoption and Effective:
Fall 2020



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