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

• A Little Background for New Participants
  – Maryland Commission on Climate Change
  – US Climate Alliance
  – Past Stakeholder Meetings

• Today’s Focus - Regulatory Requirements

• Next Meeting - Voluntary Program

• Discussion/Comments

• Next Steps
HOW DID WE GET HERE?
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

- Maryland has 3 initiatives started to address leaking methane
  - Compressor stations and other related equipment (today’s meeting)
  - Landfills
  - Wastewater Treatment Plants

• 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 States GHG reduction plans to 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
Maryland joined the U.S. Climate Alliance (USCA) on January 10, 2018

- Originally, an alliance of 12 states ... now 24 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/
California law requires reducing emissions of methane and HFCs by 40 percent, below 2013 levels by 2030.

Massachusetts is the first state in the country to impose annually declining methane emissions limits (for 2018, 2019, and 2020) on natural gas distribution system operators.

Colorado was the first state to regulate methane emissions from oil and gas operations. The 2014 rules will prevent an estimated 65,000 tons per year of methane.

New York has developed a Methane Reduction Plan, including 25 measures across 5 agencies, to cut methane from oil and gas infrastructure, waste management, and agriculture.
Two Pieces to MDE’s Effort to Minimize Leaking Methane Emissions

**Regulatory Requirements**
*Traditional Regulatory Issues*

- Natural Gas-Powered Pneumatic Devices
- Leak Detection and Repair
- GHG Reporting
- Blowdown Notifications
- Reciprocating Engines

**Voluntary, Data Driven Agreements**
*Non-Traditional Reduction Opportunities*

- Air Quality Indicator Network
- Methane Mitigation Measures
- Community Meetings
- Methane Offsets

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Today’s Meeting

Next Meeting
Stakeholder Meetings

MEETING 1 – June 29, 2017
Overview of the Natural Gas Industry

MEETING 2 – July 10, 2018
Regulatory and Voluntary Concepts - General

MEETING 3 – March 8, 2019
Regulatory and Voluntary Concepts - Specifics

TODAY’S MEETING
Summary and Discussion of “Discussion Draft” of Regulation

Next Meeting - Complementary, Non-Regulatory, Data-Driven Agreements
The Discussion Draft
Where did the regulatory language come from?

• “Discussion Draft” distributed with meeting materials
• Built from:
  ▪ Methane mitigation programs in other states
    ▪ California, Colorado, Pennsylvania, New York, others
  ▪ EPA 2016 NSPS OOOOa
  ▪ Review of stakeholder comments
  ▪ Meetings with each facility and community and advocacy groups
What is a “Discussion Draft”?

• A draft intended only to trigger discussion and input from stakeholders

• Is based upon best practice from other leadership programs

• Does not represent MDE or State policy

• Comment today ... or submit comments in writing over the next three weeks

• Individual meetings or calls - Just ask
Part I: Regulatory Requirements

Today’s Review Process

1. Joshua will go through the full summary of the “Discussion Draft”

2. When you have a question ... raise your hand ... Carolyn will acknowledge and log your name and question.

3. After completing the summary ... we will address questions in the order they were logged in.
Applicability

Discussion Draft, Page 1 – Reg .01B(1)

• Existing and “Any new, modified, or reconstructed natural gas compressor station, natural gas underground storage facility, or liquefied natural gas station.”

• Three compressor stations
  – Dominion, Myersville
  – TransCanada, Rutledge
  – Transco, Ellicott City

• One underground storage facility
  – Texas Eastern, Accident

• One import and liquefaction/export facility
  – Dominion, Cove Point
Facilities to submit initial methane emissions monitoring plan within 60 days of regulation adoption - §A(1)
  – List of components, monitoring equipment and observation path

Weekly Audio/Visual/Olfactory (AVO) Inspections - §A(4)

First LDAR monitoring survey due within 150 days of effective date of regulation. - §A(5)(a)
  – Within 150 days at the startup of new compression

Quarterly monitoring survey using Optical Gas Imaging (OGI) or Method 21 - §A(5)(a)
  – Exception for electric engines (monthly AVO, annual LDAR inspections) - §.03(B)
  – LNG specific requirements (same as clean action plan requirements) - §§.03(B) and (C)
• No reduction in frequency of quarterly survey proposed

**Repair Requirements - §A(6)**

• Repairs should be made and certified within 30 days of discovering a leak

• Quarterly and Annual record keeping and reporting - *Reg .07A(1)(a) and (b)*

• Delay of Repair (DOR) provisions if:
  – Specialty part needed
  – Repairing is technically infeasible
  – Repair requires a vent or station blowdown
  – Repair is unsafe to repair due to the operation of unit
Pneumatic Devices

Discussion Draft, Pages 3/4 – Reg .04

• Pneumatic devices will be subject to LDAR - §A(1)

• Bleed rate cannot exceed 6 standard cubic feet per hour - §A(2)

• Additional requirement: Beginning Jan. 1, 2022 switch to electric or compressed air, or use vapor collection - §B(1)
Reciprocating Engines

Discussion Draft, Page 4 – Reg .05

- Subject to LDAR - §A
- Vented gas is routed to a vapor control device - §B(1)

OR

- Rod packing required to be measured annually and replaced if exceeds emission threshold of 0.5 scfm – §B(2)
  - Canada’s threshold is 0.81 scfm (~0.04 scfm for equipment installed after January 2023)
  - California’s threshold is 2 scfm
  - $/metric ton of methane = $500; calculation using EPA formula
  - DOR provision
• All gases collected with a vapor collection system (VCS) shall route all gases, vapors and fumes to:
  – Sales gas system;
  – Fuel gas system; or
  – Vapor control device

• VCS subject to LDAR and AVO inspections - §§ B and C
• Require Blowdown Events to be Reported
  – Affected facilities shall notify the Department and publicly accessible website at least 7 days prior to any planned blowdown event - §B(1)
  – Emergency blowdowns to be publicly posted within one hour of occurrence - §B(2)

• All methane emissions from blowdown events shall be reported to the Department annually by April 1st - §B(3)
• All facilities, regardless of the size of GHG emissions, will be required to report their GHG emissions to the Department - §§ C(1) and (3)

• MDE’s reporting requirements, calculation methodology, and procedures mirror EPA’s Greenhouse Gas Reporting Program - § C(2)

• Maryland reporting requirement will harmonize reporting with federal
## Requirements in the Discussion Draft Compared to Others

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<thead>
<tr>
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<th>Maryland</th>
<th>EPA - 2016 NSPS OOOOa</th>
<th>CARB - Oil and Gas</th>
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<th>NY – Oil and Gas Stakeholder Outline 11/8/2018</th>
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<td>Repairs within 30 days of leak discovery</td>
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<td><strong>Pneumatic Controllers (Regulation .04)</strong></td>
<td>- Bleed rate &lt; 6 scfh</td>
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<td>- Bleed rate &lt;6 scfh; no-bleed where grid power (if placed in service on/after 5/1/2014)</td>
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<td>- In 2022, switch to electric or compressed air or utilize vapor control</td>
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<td><strong>Recip engines rod replacement (Regulation .05)</strong></td>
<td>Measure rod packing annually and replace at emission threshold (0.5 scfm) or utilize vapor control</td>
<td>Every 3 years or 26,000, whichever is sooner</td>
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| **Blowdown events at compressor stations (Regulation .07B)** | Report events to State and publish as applicable | No requirement | No requirement | No requirement | - Report events to the State and other responsible officials  
- Use in-line compressors  
- No compressor blowdowns |
| **GHG Reporting (Regulation .07C)** | Annual submission for all facilities               | Annual submission for facilities that emit 25,000 metric tons of CO2e under Part 98 | EPA Part 98 only | EPA Part 98 only | EPA Part 98 only  
- Currently under consideration |
Schedule

• Summer – Receive stakeholder comments on Discussion Draft of regulation

• Fall - Next stakeholder meeting

• Winter 2019 and Spring 2020 - Advisory Council and other rule adoption procedures

• Spring 2020 - Final adoption
Next Stakeholder Meeting

Review and Discussion of the Template for Non-Regulatory, Data-Driven Agreements

- Air Quality Indicator Network
- Methane Mitigation Actions
- Methane Offsets
- Community Meetings and Public Reports
QUESTIONS AND DISCUSSION

STARTING WITH QUESTIONS LOGGED DURING THE PRESENTATION