

MARAMA

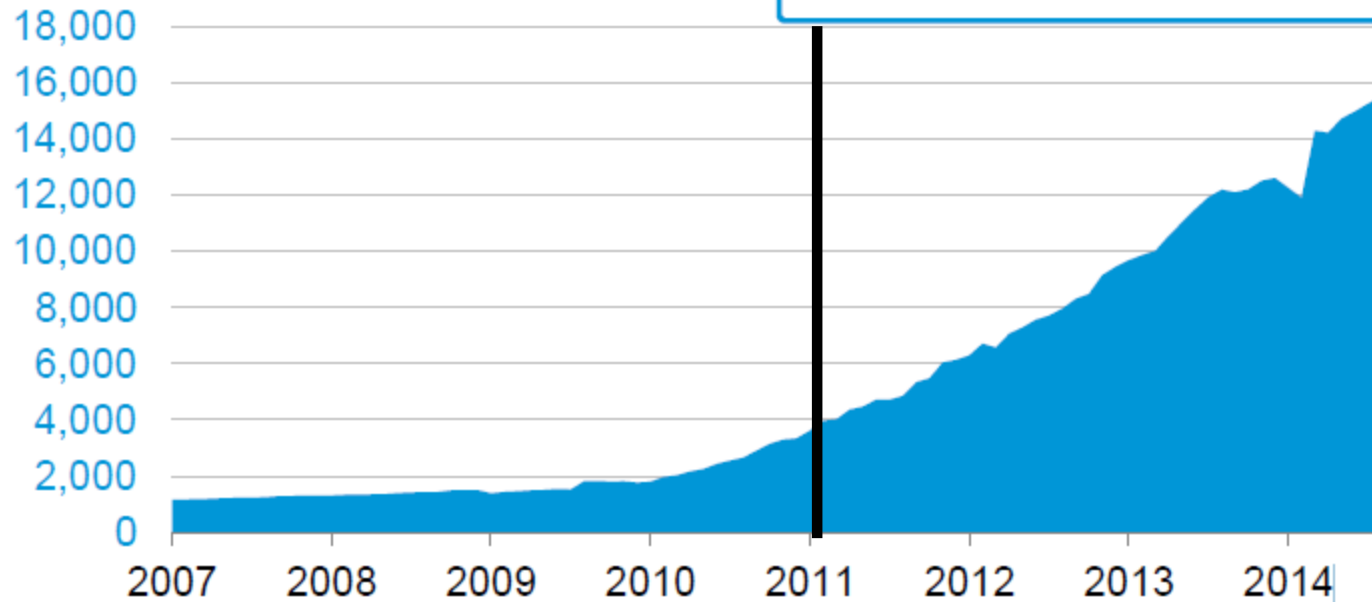
Mid-Atlantic Regional Air
Management Association, Inc.

OVERVIEW OF REGULATORY STRUCTURE FOR AIR EMISSIONS FROM OIL AND GAS SOURCES IN PENNSYLVANIA

USEPA Oil & Gas Summit
November 4 & 5 2014
Research Triangle Park, NC
Julie McDill

Production Rate Increasing Rapidly

Marcellus
Natural gas production
million cubic feet/day



Production Methods Changing Rapidly

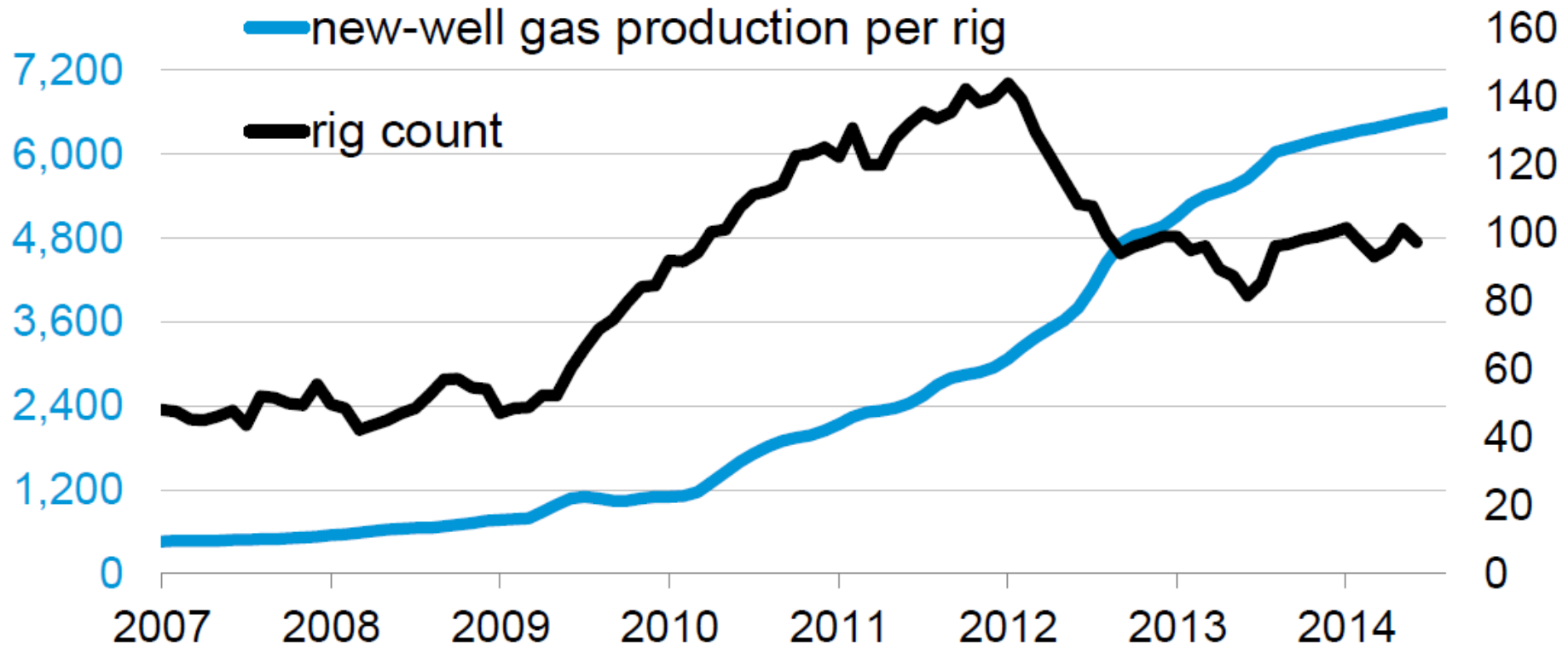
Marcellus

New-well gas production per rig

Rig count

thousand cubic feet/day

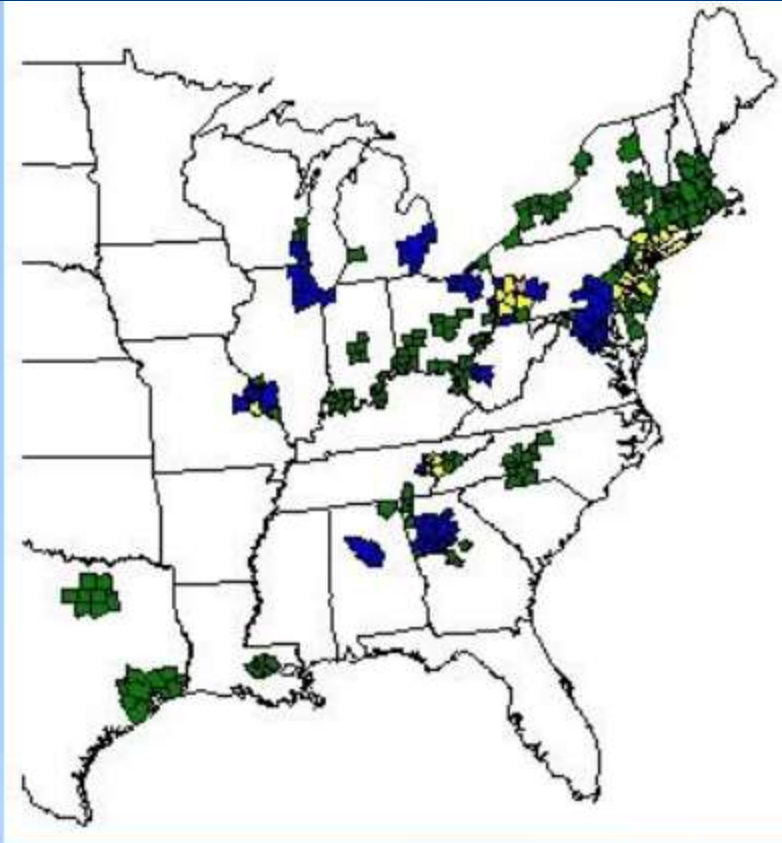
rigs



Marcellus Shale Oil & Gas 2011 Air Emissions

State Prepared Oil & Gas Inventory Submitted to USEPA for the 2011 Inventory						
	CO	NOX	VOC	SO2	PM10	PM2_5
	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]
State						
New York	747	605	8,205	95	17	17
Pennsylvania	34,198	40,563	18,607	1,952	1,581	1,507
West Virginia	27,454	21,472	46,863	1,279	32	31
Total	62,399	62,640	73,675	3,326	1,630	1,555

Proximity of Nonattainment to Marcellus Shale Plays



Nonattainment Areas



Shale Plays

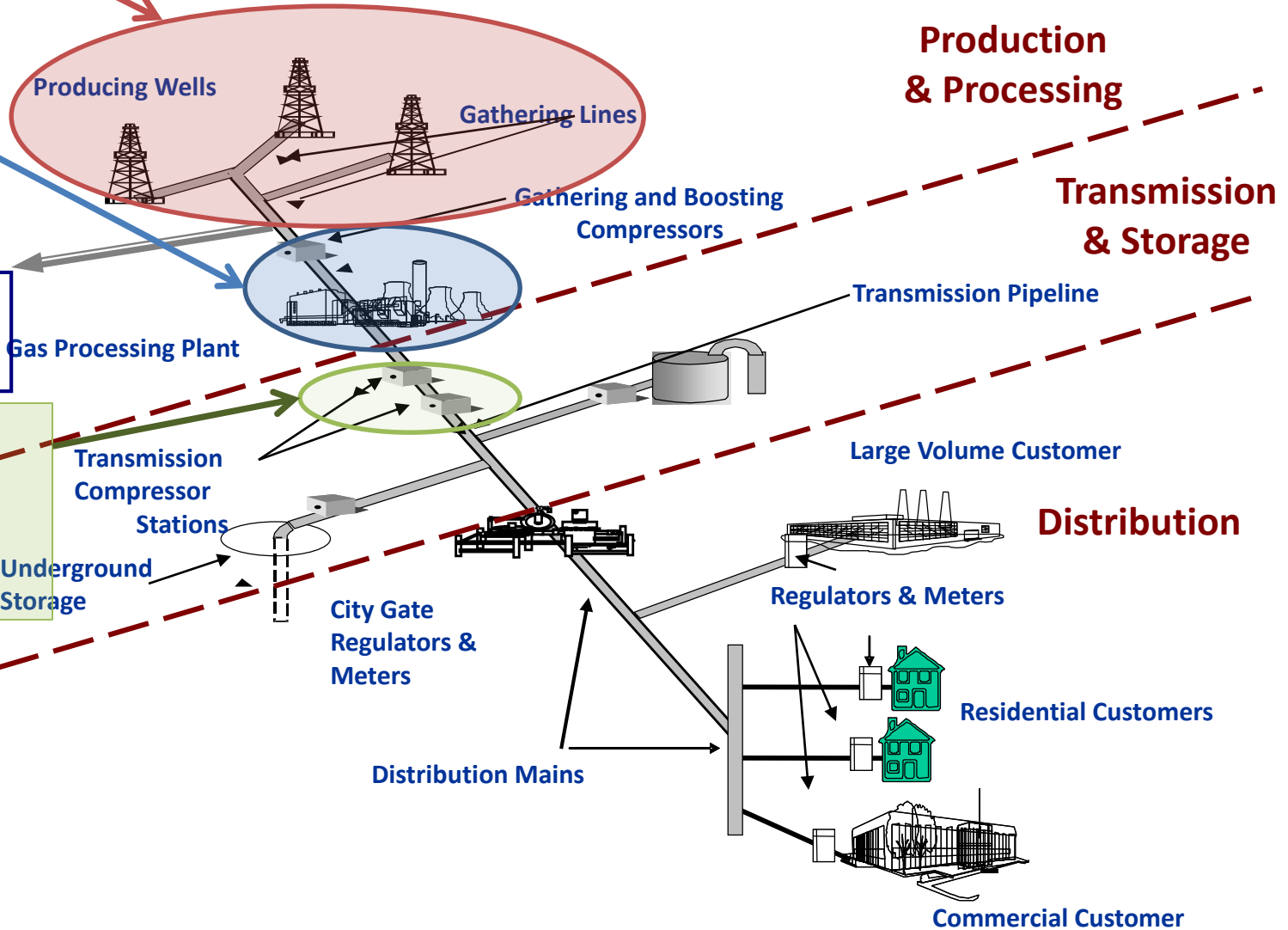
Pennsylvania
Exemption 38

Oil and Natural Gas Operations

Pennsylvania
General
Permit (GP-5)

Crude Oil to Refineries
(not in this sector)

Pennsylvania
Minor or Major
source (Title-V)
permit



GP-5 - Pennsylvania General Permit

- General Plan Approval for:
 - Non-major natural gas compression
 - Gas processing facilities
- Well pads & drilling exempted from permitting, including GP-5 general permit via Exemption 38
- Current GP-5 issued on February 1, 2013

GP-5 similar to a Synthetic Minor Permit

To qualify actual facility emissions must be less than:

- NO_x, CO, SO_x, PM₁₀ or PM_{2.5} – 100 tons/Yr
- VOCs – 50 tons/Yr
- Individual HAP – 10 tons/Yr
- Total HAPs – 25 tons/Yr
- ~~Greenhouse gases (CO₂e) – 100,000 tons/Yr~~

Actual, NOT potential-to-emit (PTE) emissions.

Source specific emission limits.

GP-5 – Source Applicability

NG-fired engines located at a **non-major** facility – **Beyond NSPS & NESHAPS**

Glycol Dehydrator and associated equipment (excluding re-boiler) – **Beyond NSPS**

- Natural gas-fired simple cycle turbines. – **Beyond NSPS**
- Centrifugal compressors. – **NSPS only**
- Natural gas fractionation process units (such as De-propanizer, De-ethanizer, De-butanizer). – Equipment leaks– **NSPS only**
- Storage vessels/tanks. – **State storage tank rule**
- Pneumatic controllers. – **NSPS only**
- Sweetening Units. – **NSPS only**
- Equipment leaks. – **Beyond NSPS**

GP-5 Advantages

ENVIRONMENTAL

- More equipment covered by limits
- Limits below NSPS & NESHAPs
- Periodic LDAR reporting below major source threshold
- Testing and verification of rates every 2500 hours of operations
- The terms and conditions cannot be modified

OPERATIONAL

- Certainty of limits
- Authorization in 30 days
- Can install lower emitting equipment and maximize operational flexibility

Exemption 38

Exempts wells pads from GP-5

Intended to minimize permitting administrative burden but not from emissions control.

VOC & HAP emissions limits set equal to or better than New Source Performance Standards (NSPS)

Quarterly leak detection: Entire well pad/facility.

However, PA DEP receives no notice of intent to install emission unit

Drilling & Fracturing Non-road Engines

Page 4 & 5 of the regulatory comparison sheet PA, CO, OH, WV

“States are precluded from establishing any emission limitations other than those required by 40 CFR Part 89”

Federal rules

Tiers

15 ppm ultra-low sulfur fuel

PA O&G Emissions Reporting

- 2011 - Unconventional Drilling, development, production sources required to report emissions
- 2012 – Both unconventional & conventional sources to report emissions
 - Coal Bed Methane exempted

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QUESTIONS?

Julie McDill, PE

MARAMA

8600 Lasalle Road Suite 636

Baltimore, MD

443-322-0319

jmcdill@marama.org