



Barr Engineering Co.

# Key Requirements of the Final New Source Performance Standards at Subparts OOOOb and OOOObc

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**Rocky Mountain EHS Peer Group**  
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Rule background

Key requirements

Compliance strategies

## Rule background: Affected NSPS subparts

Subpart	Source type	Applicable dates
<b>40 CFR part 60,</b> subpart OOOO	New, modified, or reconstructed sources	After August 23, 2011, and on or before September 18, 2015
<b>40 CFR part 60,</b> subpart OOOOa	New, modified, or reconstructed sources	After September 18, 2015, and on or before December 6, 2022
<b>40 CFR part 60,</b> subpart OOOOb	New, modified, or reconstructed sources	After December 6, 2022
<b>40 CFR part 60,</b> subpart OOOOc	Existing sources	On or before December 6, 2022

# Rule background: Affected industry sectors

## Production & Processing

EPA's methane proposal covers equipment & processes at:

1. Onshore well sites
2. Storage tank batteries
3. Gathering & boosting compressor stations
4. Natural gas processing plants

**Not shown – Centralized production facilities**

## Natural Gas Transmission & Storage

EPA's methane proposal covers equipment & processes at:

5. Compressor stations
6. Storage tank batteries

## Distribution

*(not covered by EPA rules)*

7. Distribution mains/services
8. City gate
9. Regulators and meters for customers

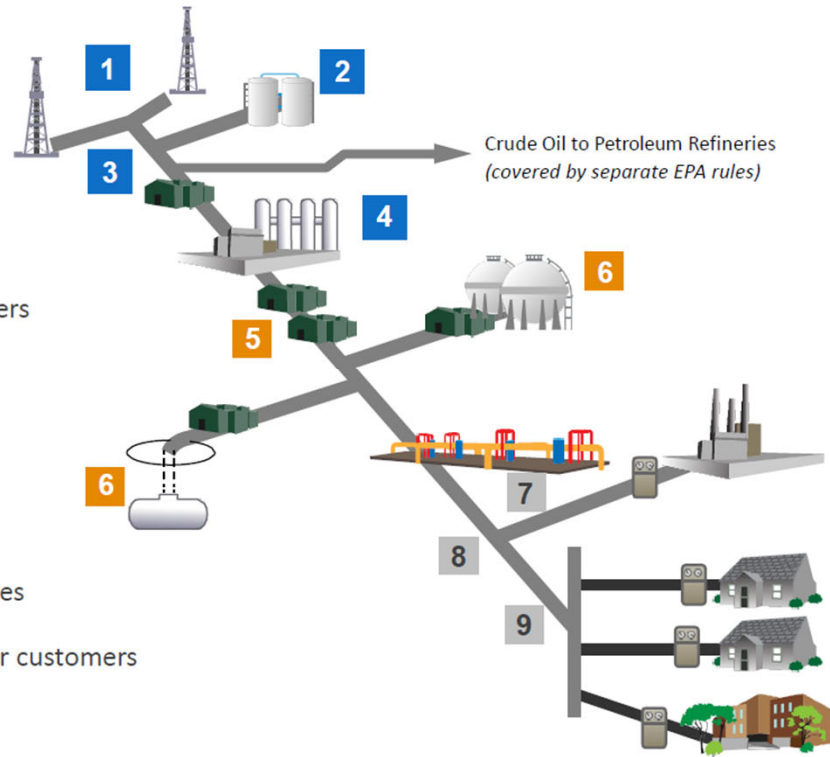


Figure from EPA Presentation and cited as: Adapted from American Gas Association and EPA Natural Gas STAR Program



# Key Requirements

## Key requirements

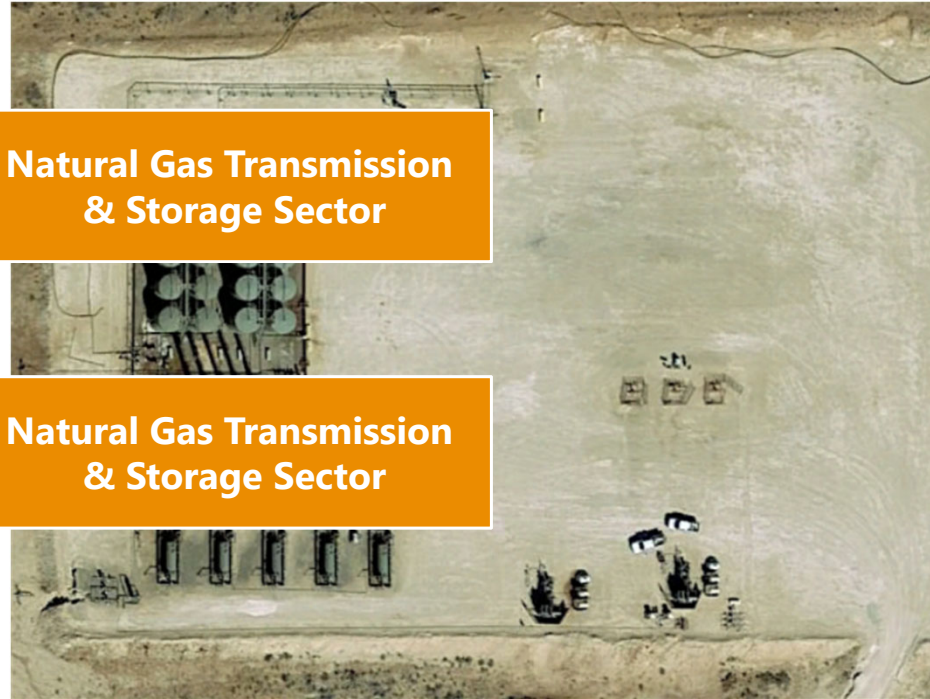
### Equipment/Processes

- Natural gas driven process (pneumatic) controllers
- Storage vessels
- Well liquids unloading
- Fugitive emissions
- Compressors
- Process (pneumatic) pumps
- Wells (incl. completions and closures)
- Amine units

### Production & Processing Sector Equipment

### Natural Gas Transmission & Storage Sector

### Natural Gas Transmission & Storage Sector



## Key requirements: Fugitive emissions monitoring and repair

Source	Monitoring	Repair Timelines
Single well sites	Quarterly Audible, Visual, and Olfactory (AVO)	AVO: Commence repair within 15 days and complete within 15 days after first repair.
Multi-wellhead sites	Semiannual Optical Gas Imaging (OGI) and Quarterly AVO	OGI: Commence repair within 30 days and complete within 30 days after first repair.
Well sites with major production equipment	Quarterly OGI and Bimonthly AVO	
Compressor Stations	Quarterly OGI and Monthly AVO	
Natural Gas Processing Plants	Bimonthly OGI following Appendix K	Commence repair within 5 days and complete within 15 days after detection.

## Key requirements: Fugitive emissions alternative monitoring methods

Minimum Screening Frequency to replace Quarterly OGI	Minimum Detection Level (kg/hr methane)
Quarterly (first 2 years only)	$\leq 3$ kg/hr
Quarterly	$\leq 1$ kg/hr
Bimonthly	$\leq 2$ kg/hr
Bimonthly + Annual OGI	$\leq 10$ kg/hr
Monthly	$\leq 5$ kg/hr
Monthly + Annual OGI	$\leq 15$ kg/hr

- Different tables corresponding to quarterly vs semiannual OGI equivalency
- Follow-up monitoring requirements vary by spatial resolution
- Alternative test methods must be approved by EPA
- Continuous monitors may be used under this framework or under separate "action levels" framework

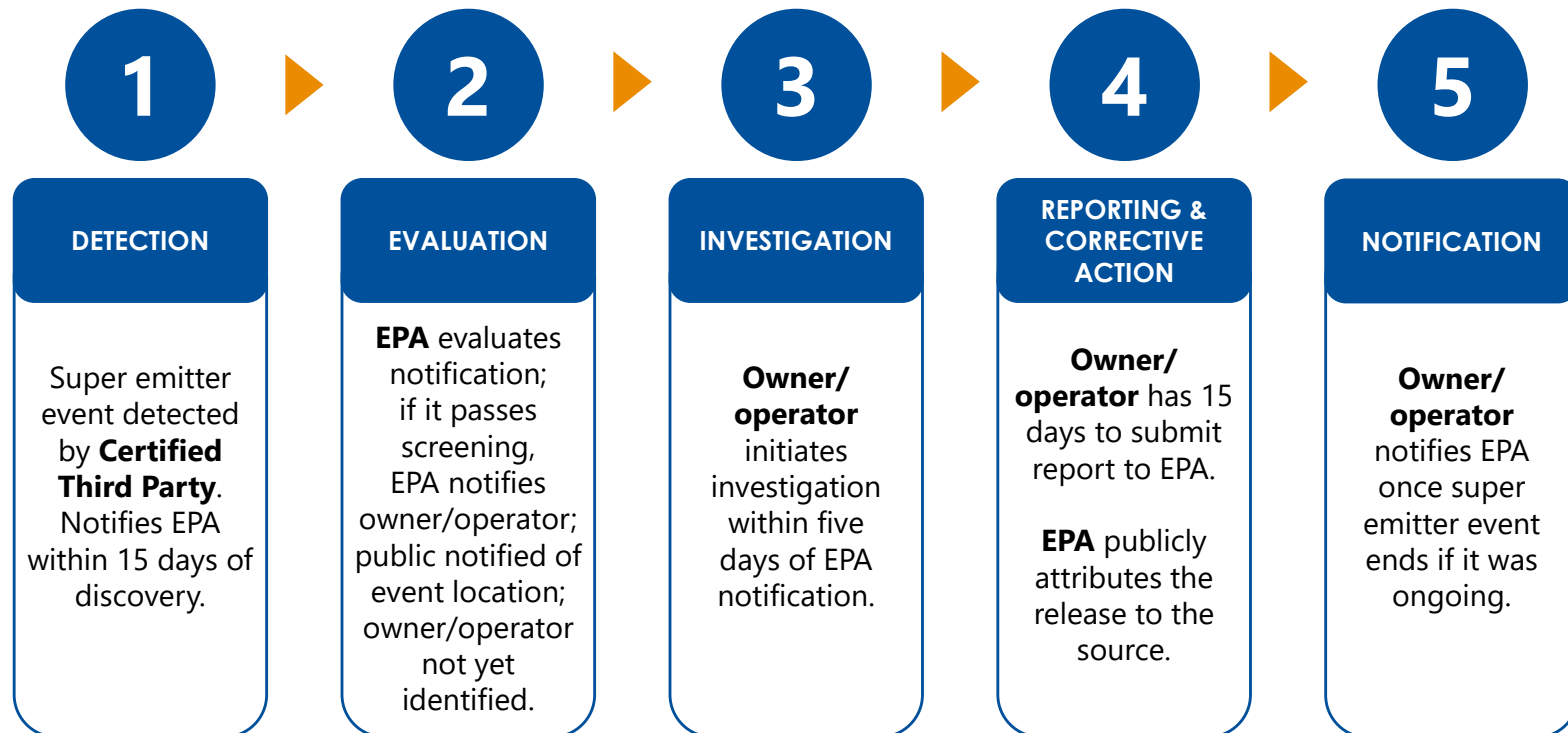


## Key requirements: Fugitive emissions

### Appendix K: Detailed procedures for OGI inspections at Natural Gas Processing Plants

- Camera specifications
- Initial performance verification
- Camera calibration and maintenance
- Monitoring plan
- Camera operator training
- QA/QC
- Recordkeeping

## Key requirements: Super emitter program

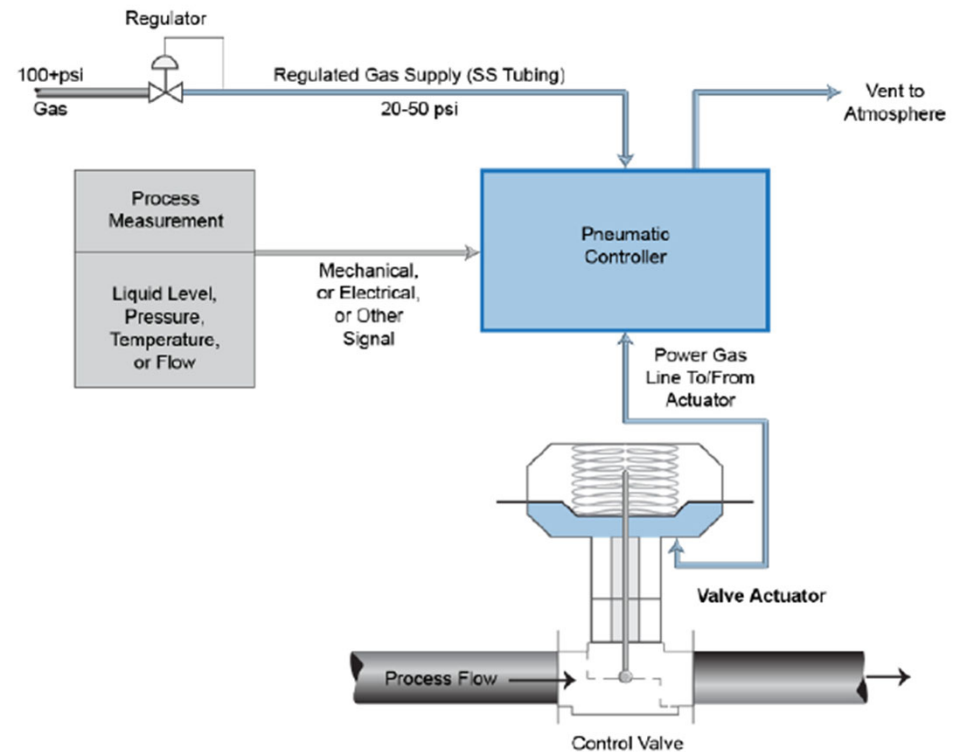


## Key requirements: Process (pneumatic) controllers

All controllers that vent to atmosphere must have VOC and methane emission rates of zero

Interim standard (1 yr):  
< 6 scf/hr or controlled

*\* Note that the affected facility is the collection of natural gas-driven process controllers*



11

Figure 8-1 from EPA-HQ-OAR-2021-0317-0166

## Key requirements: Process (pneumatic) pumps

Electricity Access	Number of diaphragm pumps	Standard
Yes	Any	Zero emissions *
No	>3	Zero emissions *
No	<3	(1)Route to VRU if present, (2)Route to controls if present, or (3)Certify controls are not present or feasible

\* Interim standard (1 year) – route to VRU/controls/certification

- Affected facility is the collection of pumps at production, processing, and transmission and storage facilities

## Key requirements: Well liquids unloading

### Requirements

- If no venting, keep records of unplanned emissions
- If venting do one of the following:
  - Implement BMPs to minimize venting to maximum extent possible
  - Route to control device that achieves 95% destruction efficiency
- Keep records of all events and submit annual report

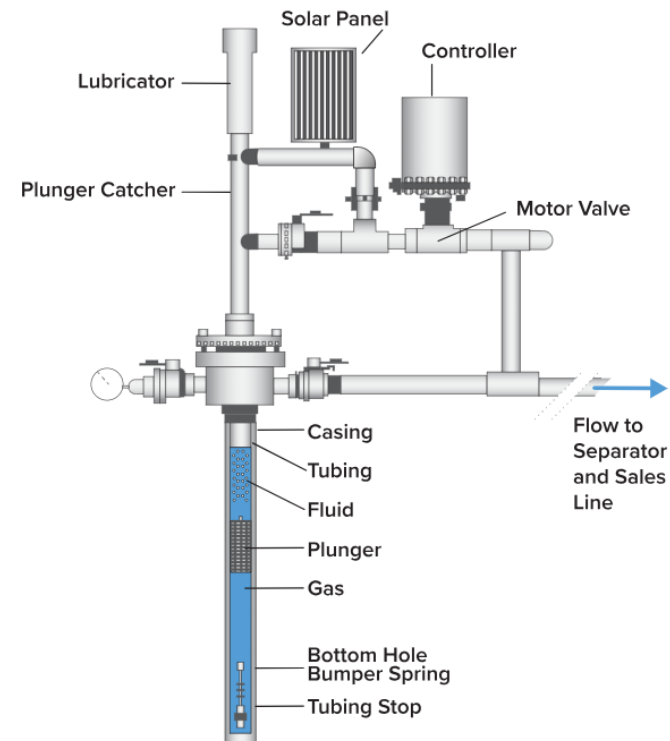


Figure 1. Plunger Lift System.

<https://www.epa.gov/natural-gas-star-program/plunger-lift-system-without-planned-atmospheric-venting>

## Key requirements: Storage vessels



<https://truenorthsteel.com/tanks-containment/above-ground-storage-tanks/oil-field-storage-tanks/>

### Updated definitions

- Storage vessel: A single storage vessel **or tank battery**
- Modification: physical or operational changes that result in an increase in the potential methane or VOC emissions

## Key requirements: Storage vessels

**0000b**

PTE  $\geq$  6 tpy VOC or  $\geq$  20 tpy CH<sub>4</sub>:  
 >95% control of VOC and CH<sub>4</sub>

**0000c**

PTE  $\geq$  20 tpy CH<sub>4</sub>:  
 >95% control of CH<sub>4</sub>

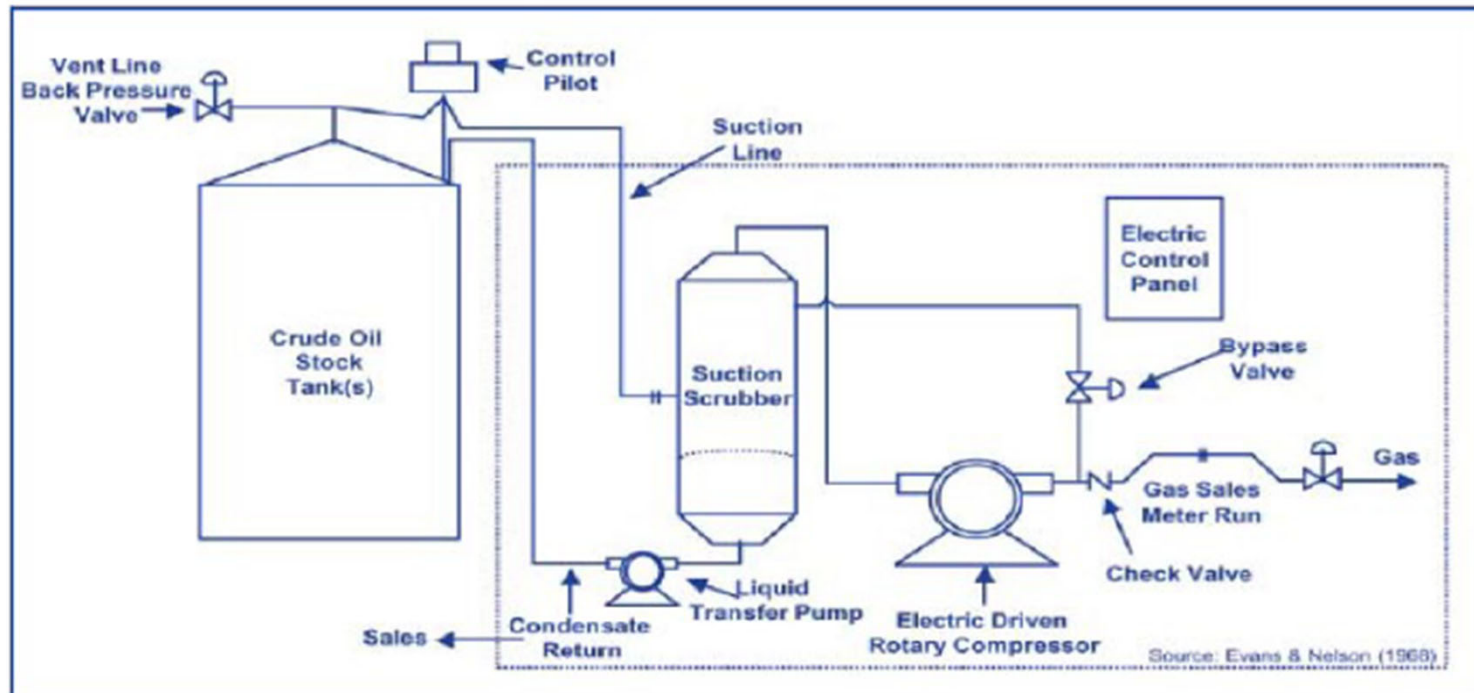


Figure 6-1 from EPA-HQ-OAR-2021-0317-0166

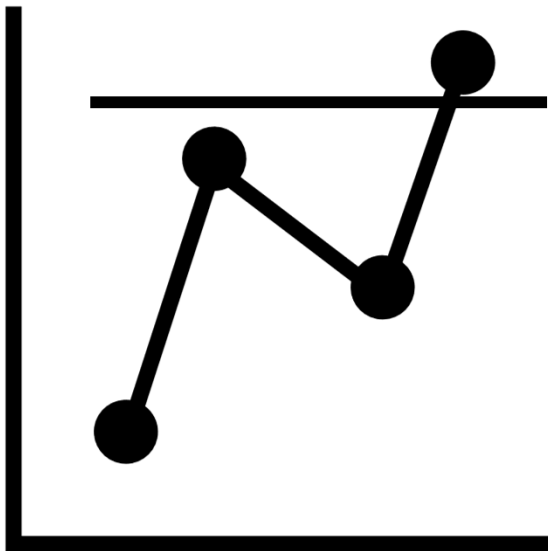
Key requirements: Storage vessels

***Would installing a new tank battery trigger OOOOb, regardless of when the tanks were constructed, and assuming PTE threshold is exceeded?***

<https://truenorthsteel.com/tanks-containment/above-ground-storage-tanks/oil-field-storage-tanks/>



## Key requirements: Storage vessels



### Enforceable limit must include...

- A quantitative production limit and quantitative operational limit(s), or quantitative operational limits for the equipment
- An averaging time period
- Parametric limits
- Initial compliance demonstration if using control device
- Ongoing monitoring
- Recordkeeping
- Periodic reporting

## Key requirements: Associated gas

	Commenced Construction Timing	Best System of Emission Reduction (BSER)	Exceptions
NSPS OOOOb	New wells commenced 790 days after publication	Route recovered gas to sales line, use as onsite fuel source, use for another useful purpose, or inject the gas	May route gas to a control device either under specific conditions or by certifying that the BSER methods are technically infeasible
	New wells commenced 60 days after publication		
	New wells commenced Dec 6, 2022 to 60 days after publication		
NSPS OOOOc	Existing wells > 40tpy CH <sub>4</sub>	May route gas to a control device through a closed vent system	
	Existing wells ≤ 40 tpy CH <sub>4</sub>		

Note: Gas venting will be limited and shall not exceed 24 hours in a calendar year

## Key requirements: Increased control requirements

### Reciprocating compressors

- Limit flow rate to < 2 scfm/cylinder or use CVS/controls
- Annual measurements

### Centrifugal compressors

- New wet seal compressors: Control emissions by 95%
- Flow rate limits for dry seal, self-contained wet seal, and existing

### Closed vent system and control devices

- Performance testing required every 5 years
- Parametric monitoring for continuous compliance
- Control device monitoring plan
- Monthly Method 22 fugitive emission observations

### Well closures

- Closure plan and notification of intent to close required
- Fugitive emission monitoring and reporting following closure



# Compliance Strategies

## Applicability Review for Subpart OOOOb

- Applicability can be complex particularly for affected sources which are “collections” (storage tanks, process controllers and pumps)
- Consider the updated applicability date (12/6/22 vs. 11/15/21)
- Confirm effective dates
  - 60 days after rule published in FR with some exceptions (interim standards, recip compressor rod packing schedules)
- Review storage vessel emissions and “legally and practically enforceable” limits

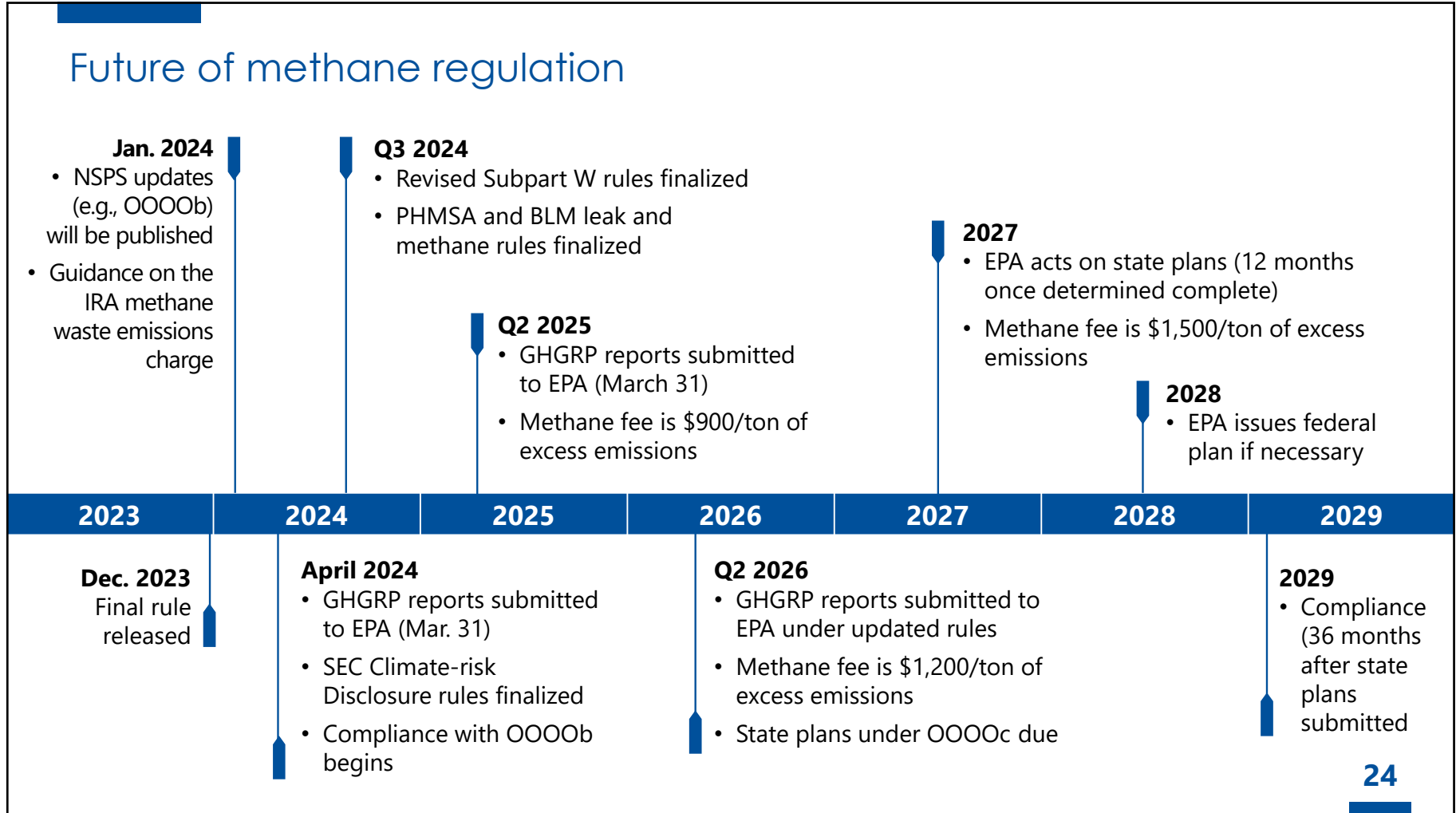
## Gap Assessment

- With your listing of affected facilities, what are the new compliance requirements that aren't already met?
- What actions need to be taken to comply and by when?
  - Flag long-lead and high capital cost items (e.g., new controls)
  - Strategize for responding to super emitter claims
  - Begin recordkeeping
- Consider when to change your existing approach
  - e.g., does alternative fugitive emission monitoring make more sense for your company than OGI?

## Planning and Implementation

- Closing the identified gaps
  - Who is responsible (e.g., maintenance, capital projects)
  - Schedule for completion by effective date
- Preventing future gaps
  - Evaluate new facility construction standards and construction permitting
- Consider the broader picture for methane regulation and your company's ESG program

## Future of methane regulation





**BONUS!!**

## Methane Waste Emissions Charge (WEC)

Industry Segment/Facility Type	WEC on Reported Emissions that Exceed the following:
Offshore and onshore petroleum and natural gas production	(A) 0.20 % of natural gas sent to sale; OR (B) 10 metric tons of methane per million bbls of oil sent to sale, if facility sent no natural gas to sale
Onshore natural gas processing; Onshore petroleum and natural gas gathering and boosting; Liquefied natural gas storage; and Liquefied natural gas import and export equipment	0.05 % of natural gas sent to sale from or through facility
Onshore natural gas transmission compression; Underground natural gas storage; and Onshore natural gas transmission pipeline	0.11 % of natural gas sent to sale from or through facility

- Option for netting
- Fees increase each reporting year
  - 2024: \$900
  - 2025: \$1200
  - 2026 forward: \$1500
- WEC collection is based on current and future Subpart W provisions
- Possible fee exemption for facilities fully in compliance with OOOOb and OOOOc starting in 2027 or later.



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# Questions?