

Gasoline Dispensing Facility Emissions Rulemaking Informational Presentation

Air Quality Planning Section

January 24, 2024

DEQ Portland Office

700 NE Multnomah St. Portland, OR 97232

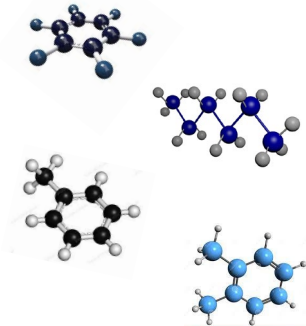
Gasoline Dispensing Facilities

Gasoline dispensing facilities (GDFs) are sites where **gasoline is loaded into, and dispensed from, stationary storage tanks.**



GDFs emit vapors that contain Hazardous Air Pollutants (HAPs) and compounds that contribute to the formation of smog (or ozone), such as:

- benzene
- hexane
- toluene
- xylenes
- **Volatile Organic Compounds (VOCs)**



National Ambient Air Quality Standards and GDFs

The **National Ambient Air Quality Standards** are limits associated with the Clean Air Act on the atmospheric concentration of **six criteria pollutants** associated with smog, acid deposition, and other environmental/health risks.

Carbon Monoxide



Particulate Matter



Lead



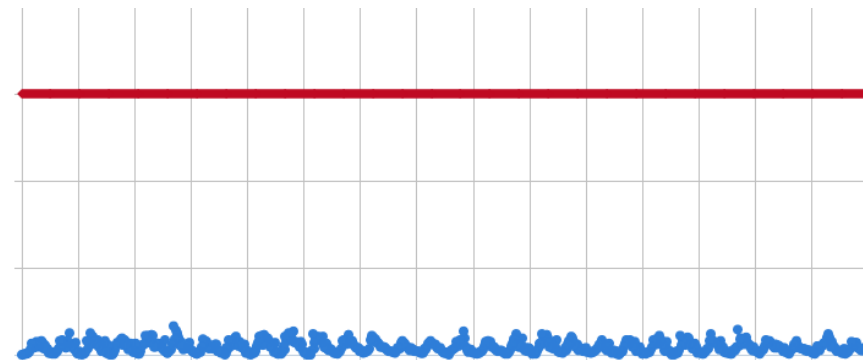
Ozone



Sulfur Dioxide



Nitrogen Dioxide



Criteria pollutant concentrations should be under threshold levels set by EPA.

State Implementation Plan = rules, requirements, and emissions reductions submitted to EPA that are designed to protect the NAAQS.

Vapor Controls Should Reduce Emissions

Stage II vapor recovery systems were used starting in the 1990s to reduce emissions of ozone-forming VOCs; this was required by EPA for the Portland-Vancouver Air Quality Maintenance Area.

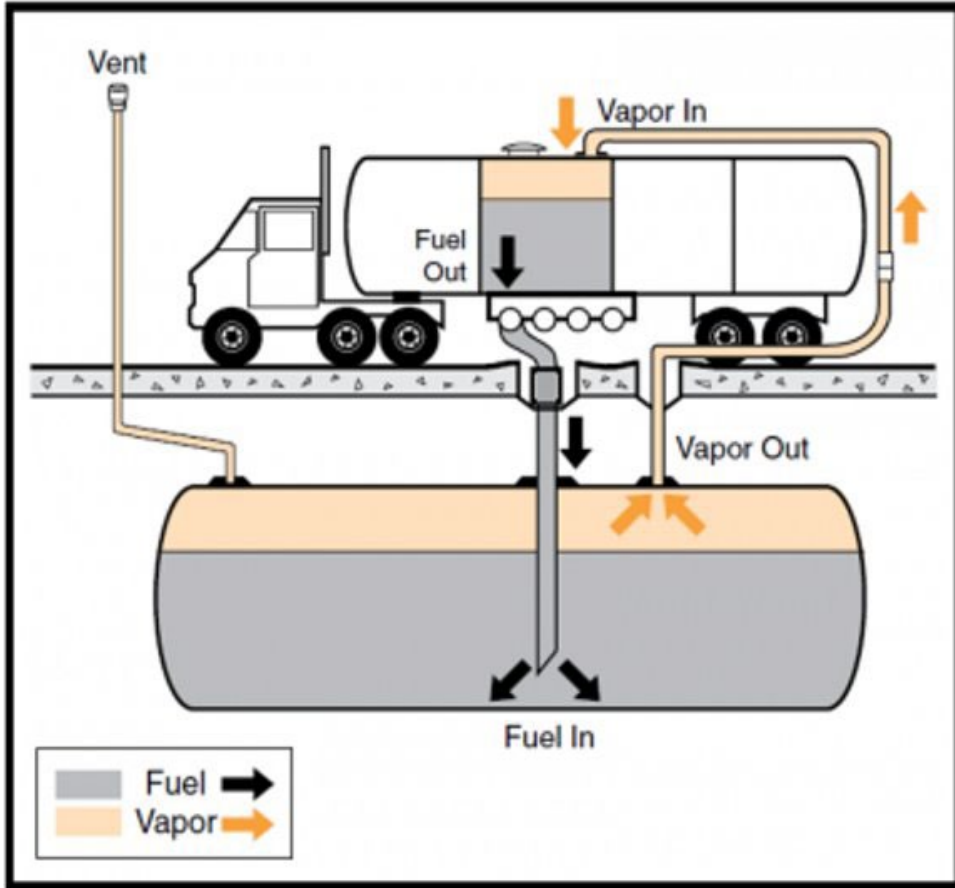
Stage II technology now:

- is somewhat obsolete;
- in some cases, can result in more emissions than if Stage II was not installed; and
- is no longer required by EPA

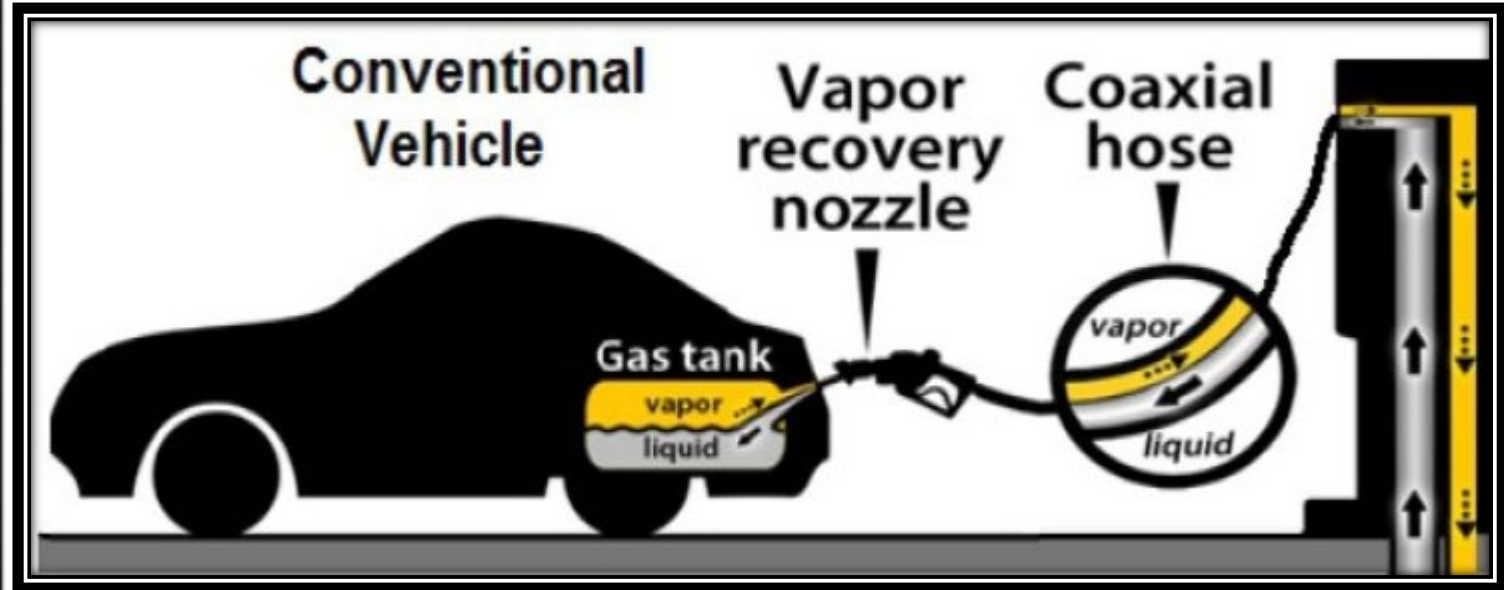
OAR chapter 340 divisions 242 and 244 establishes variable applicability largely based on facility location (NAAQS ozone concern areas)

Gasoline Dispensing Facilities: Controls

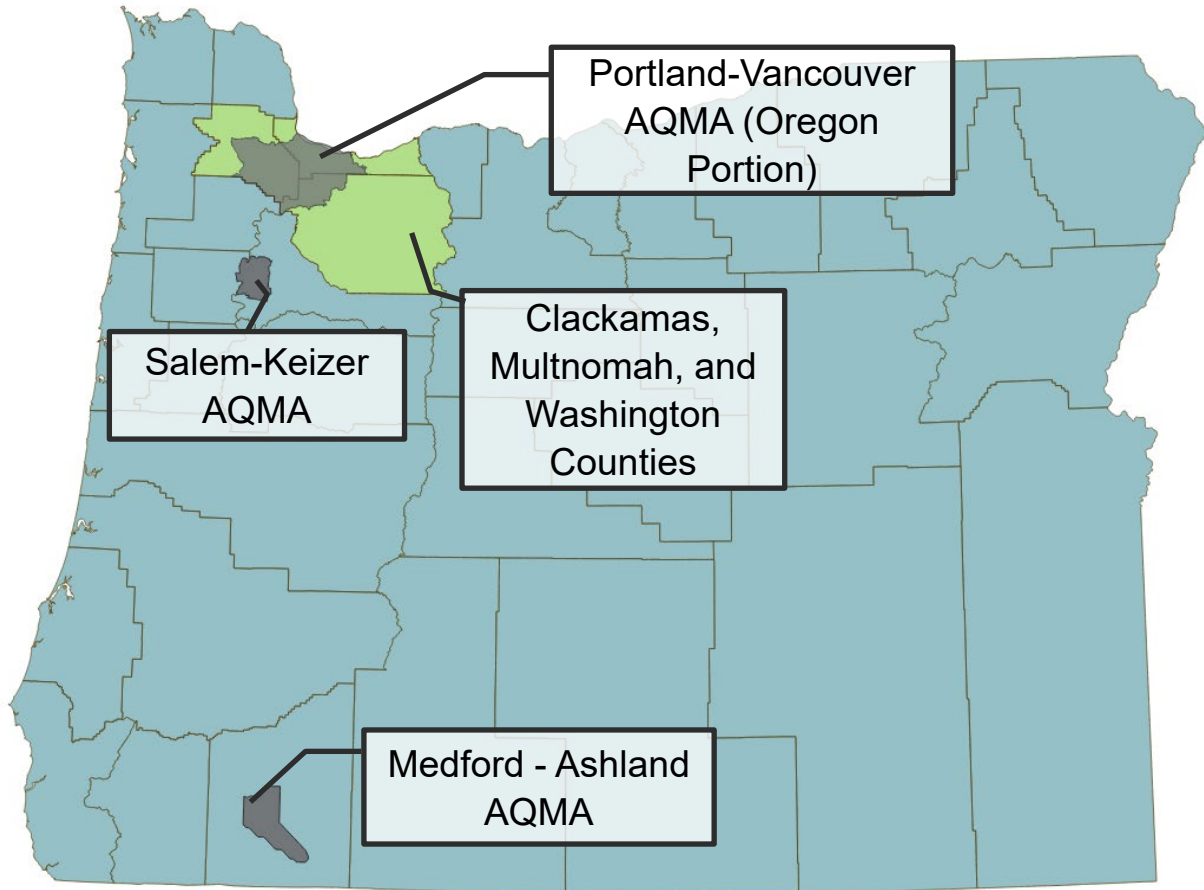
Stage I Vapor Balance: Division 244



Stage II Vapor Recovery: Division 242

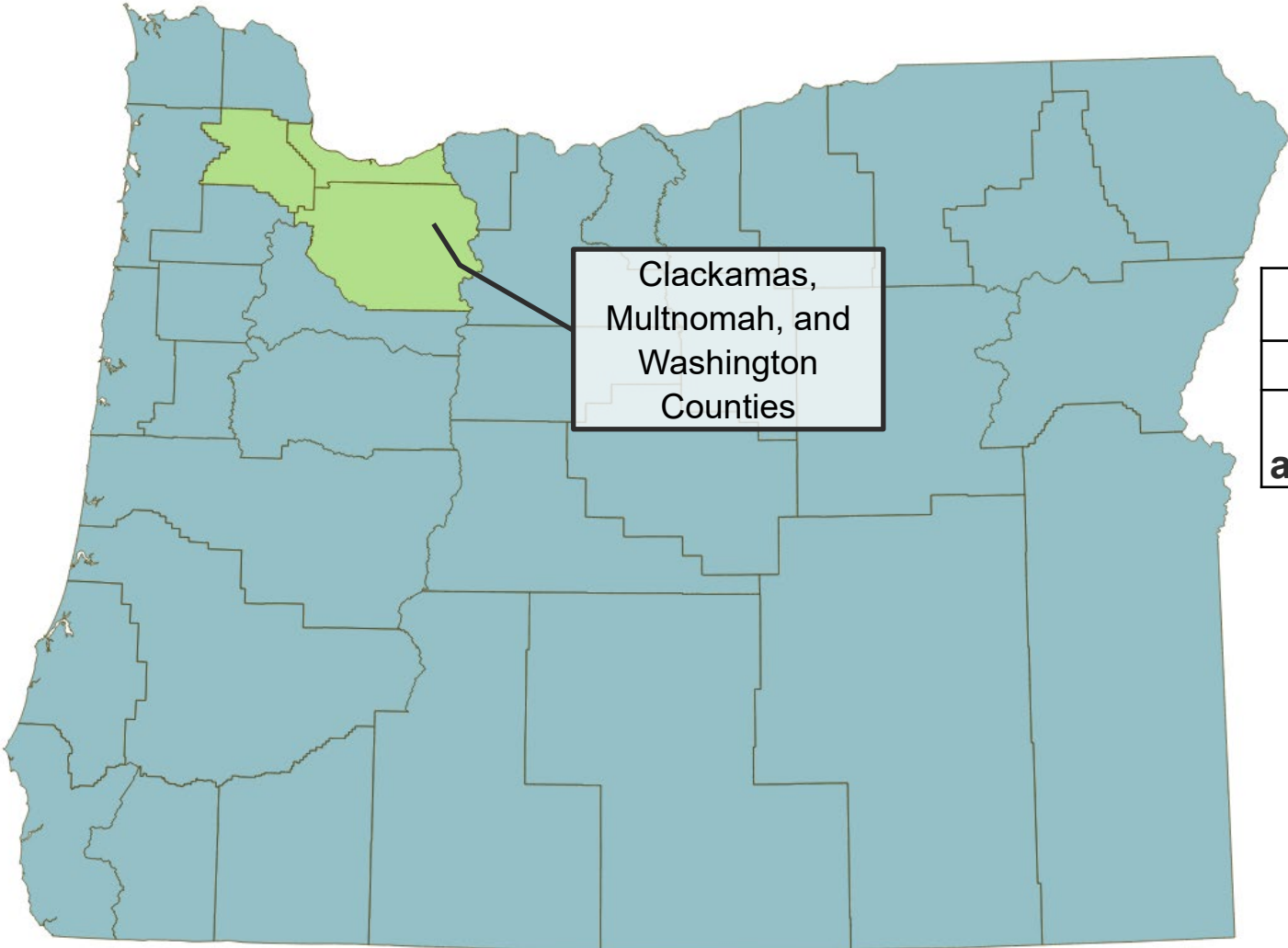


Current Rules - Stage I Vapor Balance

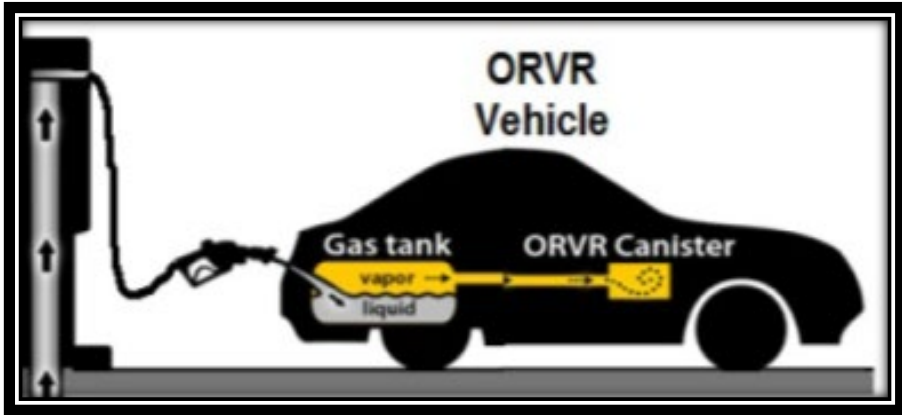


Area	Who is Subject?
State-wide	Annual throughput: 480,000 gallons or more or Monthly throughput: 100,000 gallons or more
Clackamas, Multnomah, and Washington Counties	Annual throughput: 120,000 gallons or more
Portland- Vancouver AQMA	All tanks with a capacity of 1,500 gallons or more
Salem-Keizer SKATS	
Medford- Ashland AQMA	

Current Rules - Stage II Vapor Recovery



Area	Who is Subject?
State-wide	N/A
Clackamas, Multnomah, and Washington Counties	Annual throughput: 600,000 gallons or more



Onboard Refueling Vapor Recovery

Statewide: 77%
PDX Tri-county: 88%

ORVR equipment
Federal legislation required EPA to adopt ORVR regulations for gasoline-powered vehicles.

1998: Began phasing in for new vehicles
2006: More than 99% of all new vehicles equipped

ORVR Canister

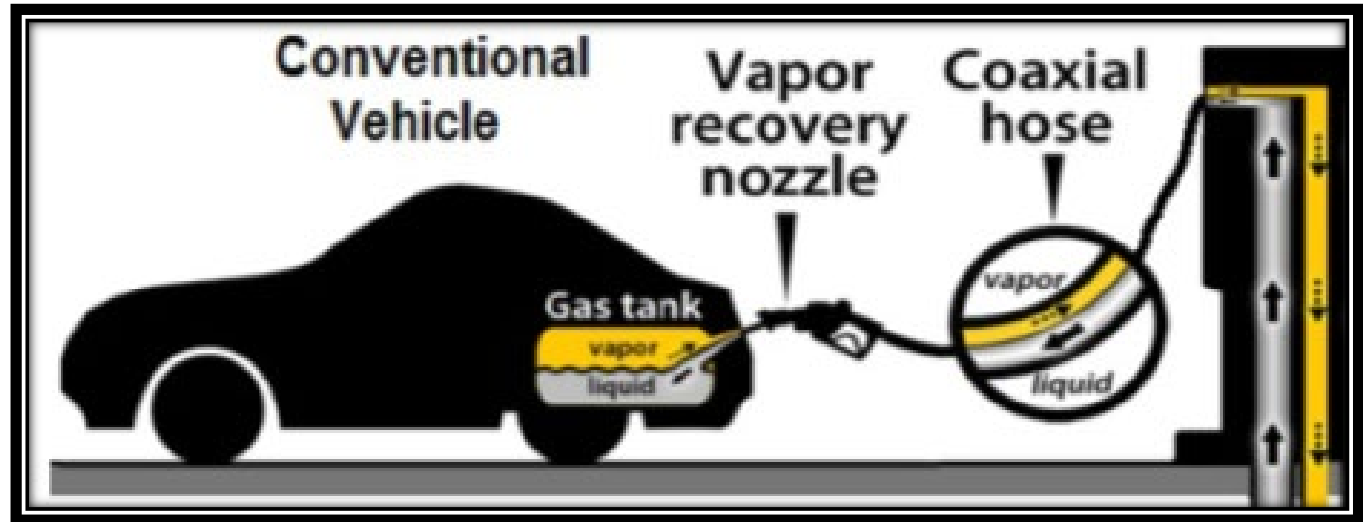
Gas tank

vapor

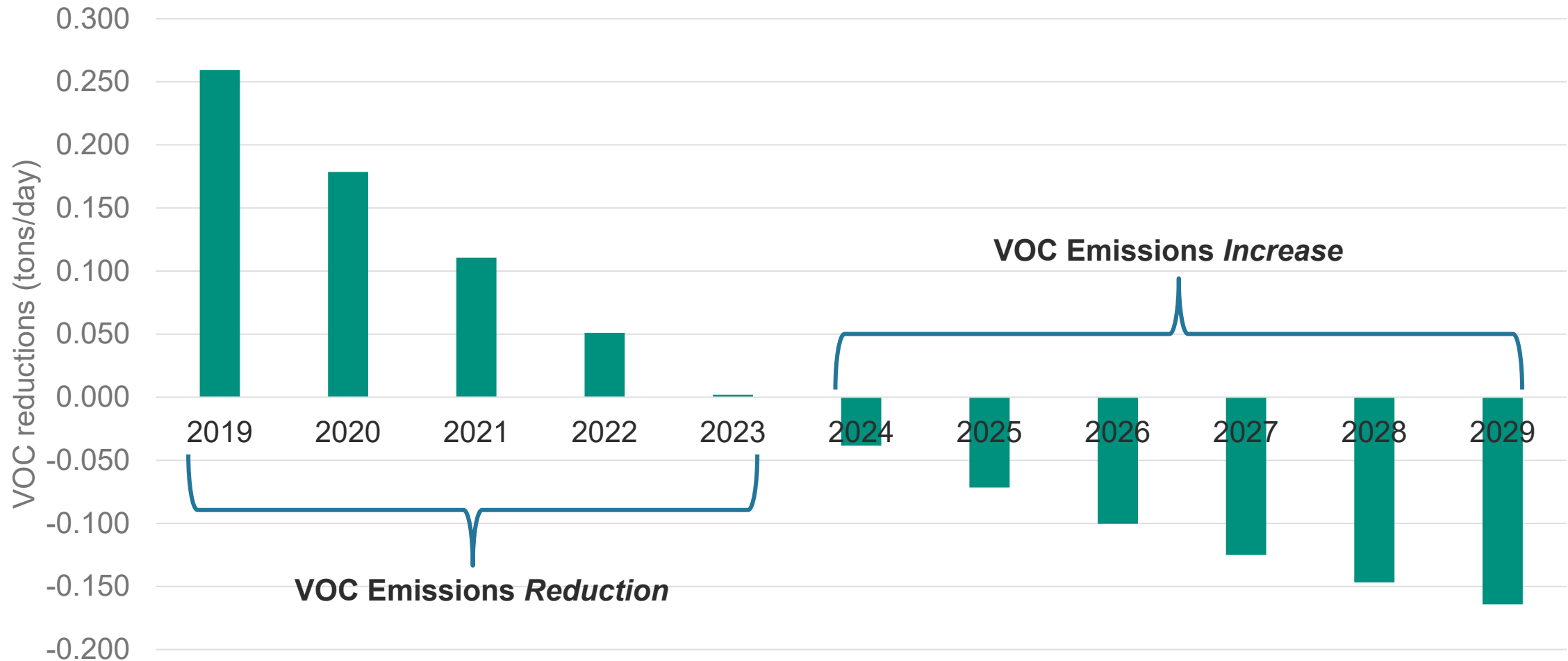
liquid

Balance nozzle
Compatible with all ORVR equipment.

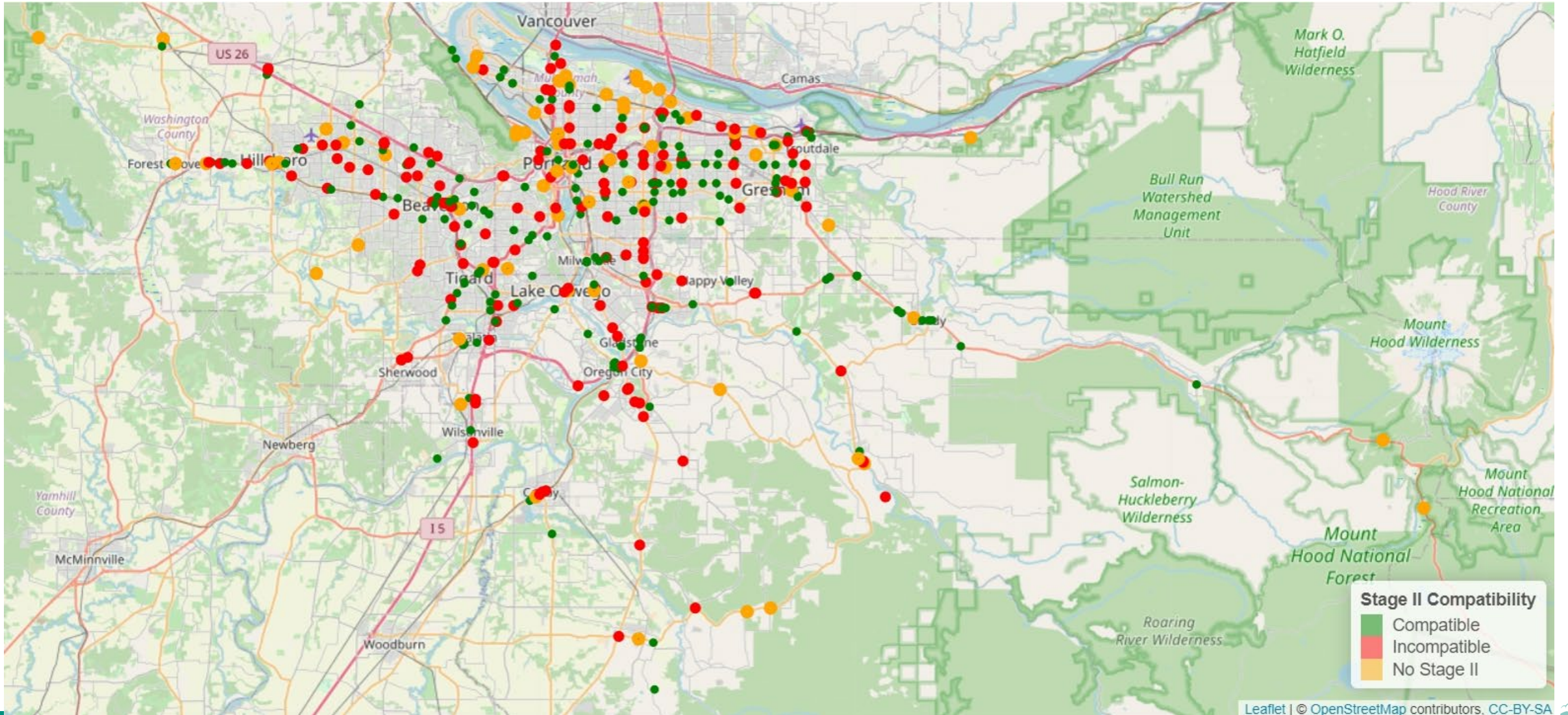
Vacuum assist nozzle
Some are incompatible with ORVR equipment and can actually cause a net increase in emissions.



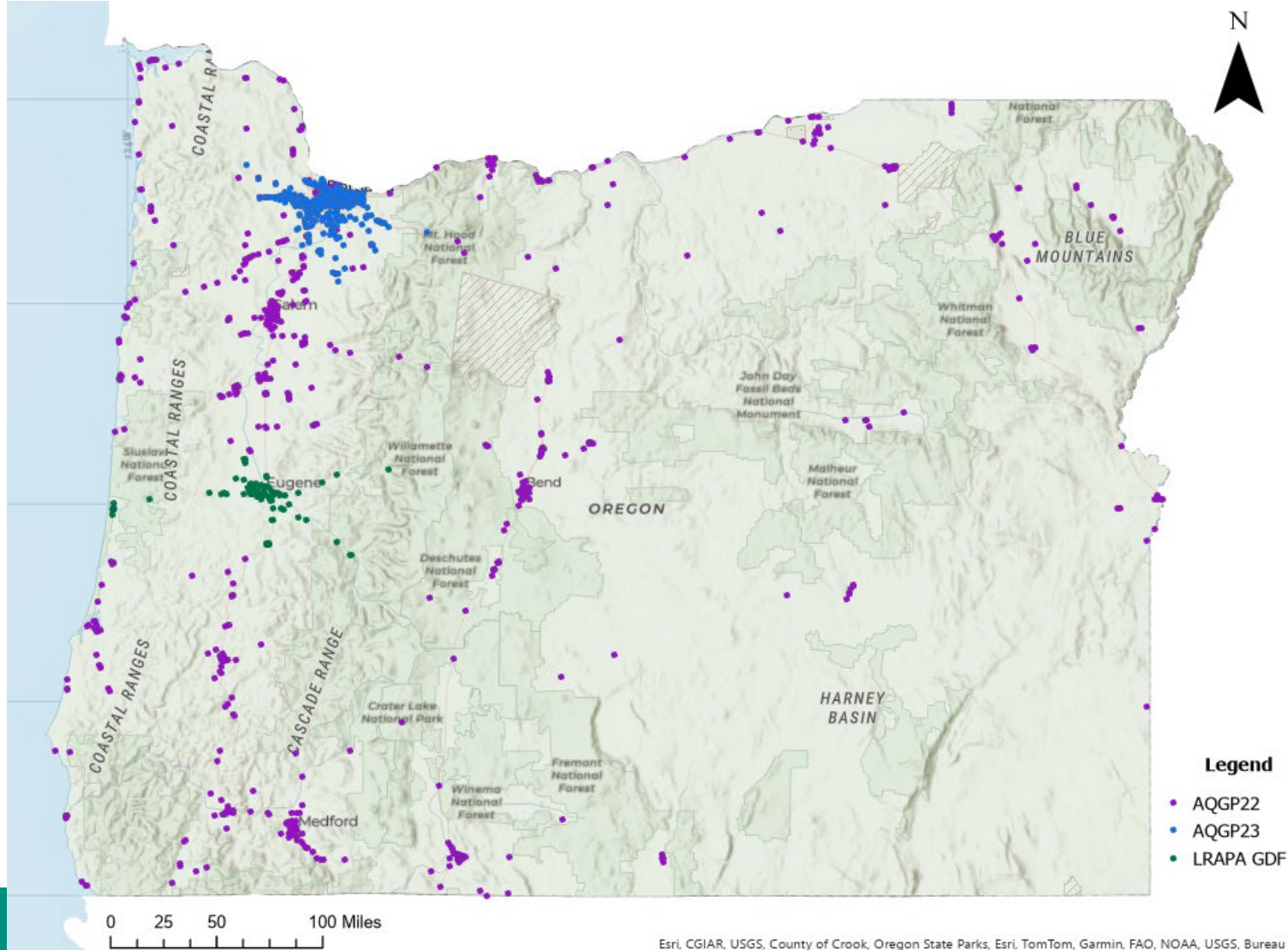
Stage II “Tipping Point”



Stage II ORVR Compatibility



Facility Locations - Permitted GDFs



Rulemaking Purpose

- Some existing Stage II equipment incompatible with broadly in-use ORVR
- Explore additional measures to reduce emissions and further improve air quality
- Increase consistency of requirements across the state

Proposed Rules: Control Technologies

- Stage II vapor recovery (only compatible with ORVR)
- Stage I Enhanced Vapor Recovery (EVR)
- Enhanced Conventional (ECO) Nozzles
- Dual-point gasoline storage tanks

Proposed Rule Applicability

- **GDF 1:** all gasoline storage tanks below 250 gallons
- **GDF 2:** a gasoline storage tank at 250 gallon+ capacity
- **GDF 3:** facility with 120,000+ gallons annual throughput
- **GDF 4:** facility with 600,000+ gallons annual throughput
- **GDF 5:** facility with 1,000,000+ gallons annual throughput

GDF 1 and 2 Requirements

GDF Type 1

Site with only storage tanks under 250 gallon capacity

GDF 1

Work Practices

Recordkeeping

GDF Type 2

Sites with a storage tank at 250 gallon+ capacity

GDF 2

Work Practices

Recordkeeping

Submerged Fill

No substantive emissions reductions expected from these facilities

No substantive changes in equipment requirements for these facilities

GDF 3 Requirements

GDF Type 3

Site with 120,000+
gallons per year

All previous...

- Work practices
- Submerged fill
- Recordkeeping

And...

- **New: Stage I Vapor Balance**
- **Existing:
new/replaced
tank Stage I
Vapor Balance**
- **Reporting**
- **Recurring testing**

GDF 4 Requirements

All
previous...

- Work practices
- Submerged fill
- Recordkeeping
- Reporting
- Recurring testing
- Stage I vapor balance

And...

1. New site: Stage I EVR + ECO
2. Existing site: new/replaced tank = Stage I EVR + ECO
3. Existing site Stage II *incompatible*:
 - By 2025 compatible Stage II; or
 - By 2025 Stage I EVR + ECO

GDF Type 4

Site with 600,000+
gallons per year

GDF 5 Requirements

All
previous...

- Work practices
- Submerged fill
- Recordkeeping
- Reporting
- Recurring testing

And...

- **New site: Stage I EVR & ECO**
- **Existing:**
 - **Dual point tanks = Stage 1 EVR + ECO by 2030**
 - **Single pt tanks = maintain current Stage 1 vapor balance**
 - **New/replaced tanks = dual point + Stage 1 EVR**

GDF Type 5

Site with 1,000,000+
gallons per year

Existing Facility Cost Estimates

GDF 3: 120k+ gpy

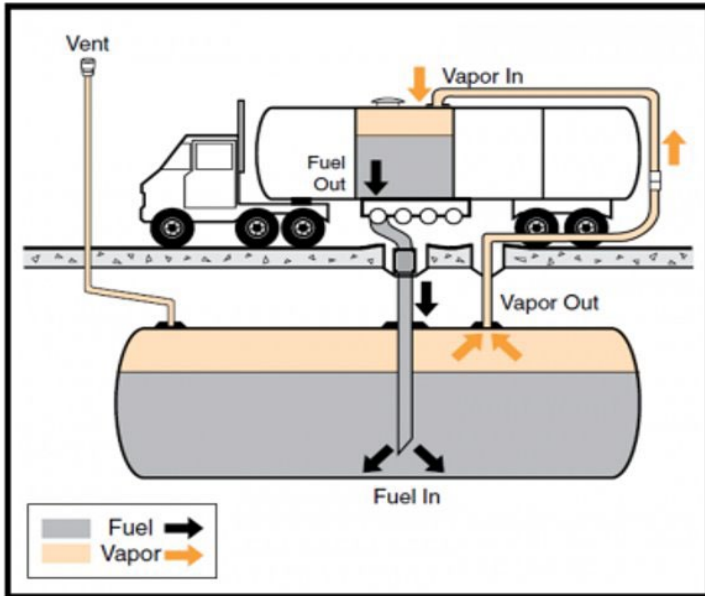
Scenario 1



No controls to Stage 1 vapor balance = **\$3,465/tank**

- Cost with new/replaced tanks only
- \$450/yr added expense for testing

Scenario 2

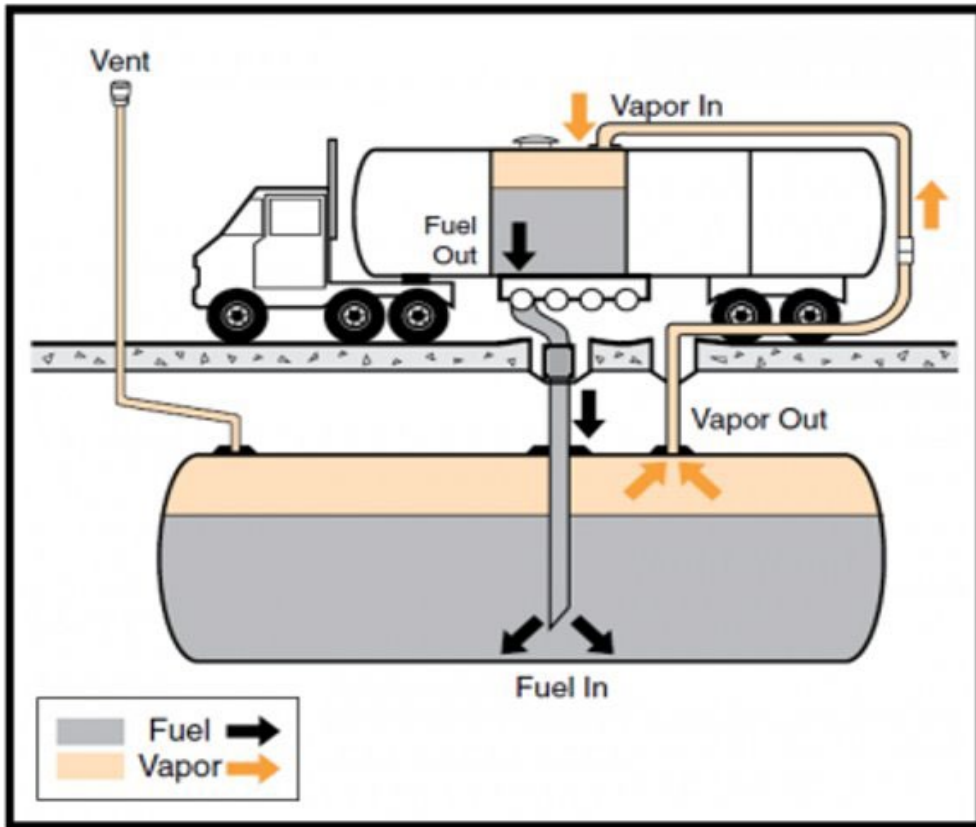


Stage 1 vapor balance already installed = **\$330**

- Cost of time to review updated rules/permits
- \$450/yr added expense for testing

Existing Facility Cost Estimates

GDF 4: 600k+ gpy

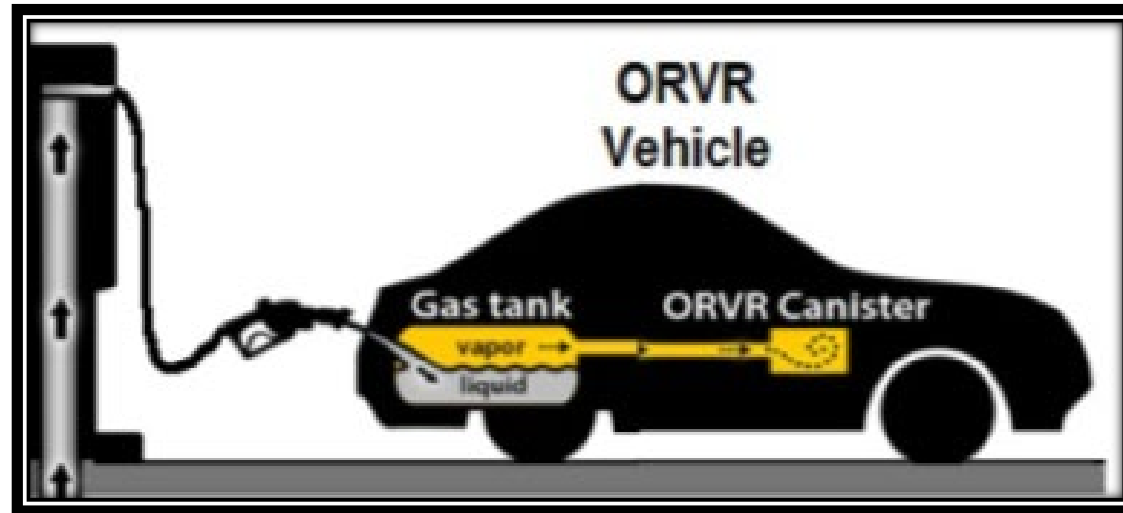


Stage 1 vapor balance to
Stage 1 EVR + ECO

- \$3,671 in equipment/labor costs with new/replaced tank
- \$1,126 for each additional tank
- \$75 - \$450/yr added expense for testing

Existing Facility Cost Estimates

ORVR
incompatible
Stage 2 vapor
recovery
systems



GDF 4 (600k+ gpy)
&
GDF 5 (1mil+ gpy)

Option 1

Option 2

Stage 2 incompatible to Stage 2 compatible

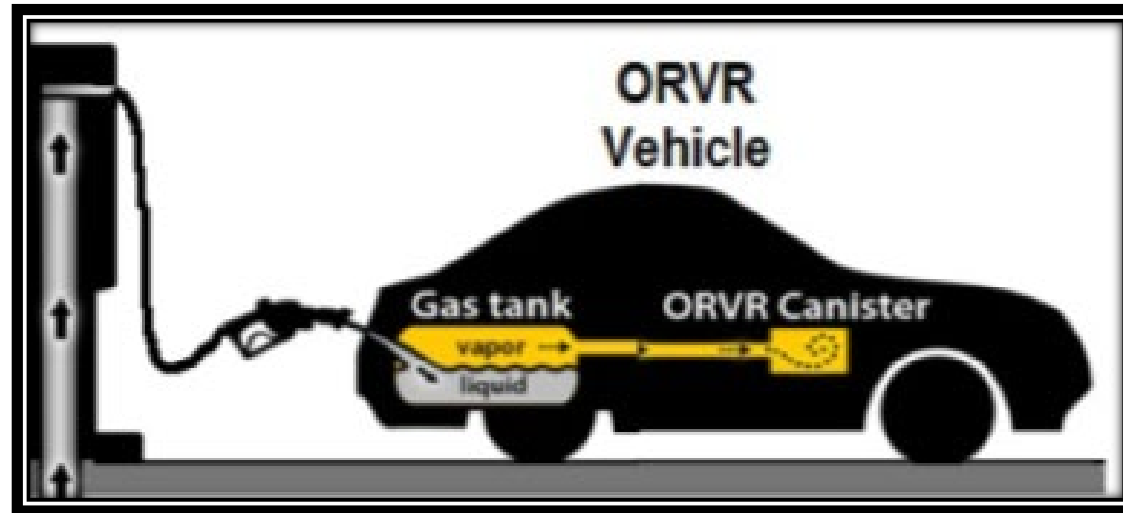
- **\$8,757** in equipment/labor cost
- \$75 - \$450/yr added expense for testing
- Cost expected before 12/31/2024

Stage 2 incompatible to Stage 1 EVR + ECO

- **\$14,333** in equipment/labor costs
- \$0 - \$75/yr added expense for testing
- Cost expected before 12/31/2024

Existing Facility Cost Estimates

ORVR
compatible
Stage 2 vapor
recovery
systems



GDF 4 (600k+ gpy)
&
GDF 5 (1mil+ gpy)

Option 1

Option 2

Stage 2 compatible, no change = **\$360**

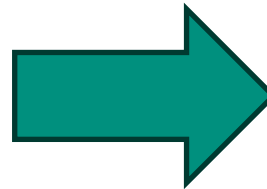
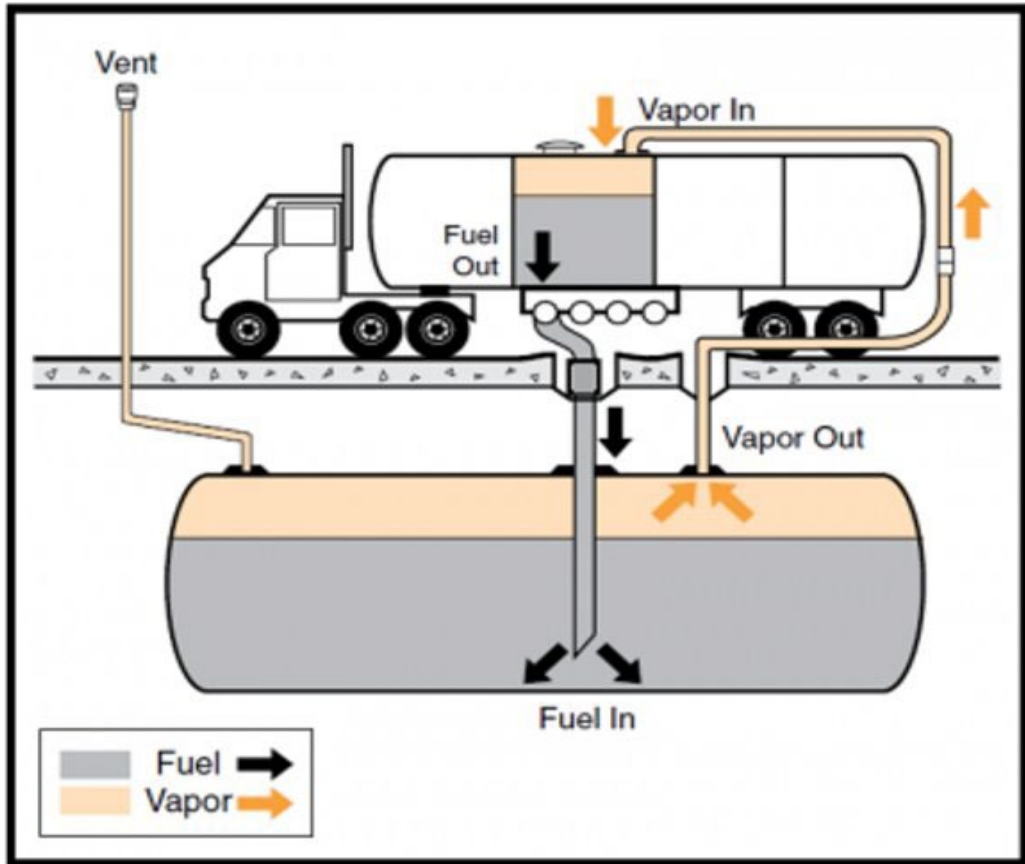
- Cost of time to review updated rules/permits
- \$75 - \$450/yr added expense for testing

Stage 2 compatible to Stage 1 EVR + ECO

- **\$15,083** in equipment/labor costs
- \$75 - \$450/yr added expense for testing

Existing Facility Cost Estimates

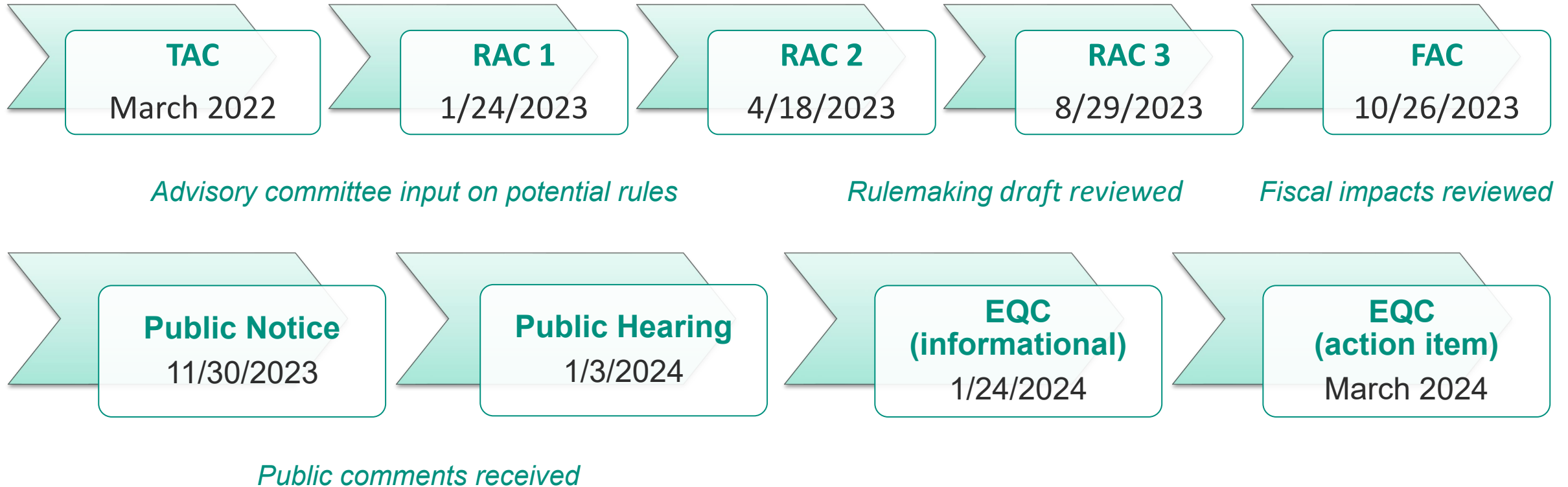
GDF 5 (1mil+ gpy)



Stage 1 vapor balance to Stage 1 EVR + ECO

- **\$3,671 - \$12,771** in equipment/labor costs by 12/31/2029
- **-\$3,331** for each single point tank on site
- **\$75 - \$450/yr** added expense for testing

Rulemaking Process and Timeline



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