

# Dairy Air Emissions Petition Recommendation for EQC Decision

Environmental Quality Commission Special Meeting  
Item A  
Nov. 9, 2022

# Petition to Promulgate Dairy Air Emissions Regulatory Program

Food & Water Watch	350 Eugene	Farm Forward	350 Deschutes
Farm Sanctuary	Animal Legal Defense Fund	ASPCA	Friends of the Columbia Gorge
Beyond Toxics	Friends of Family Farmers	Center for Biological Diversity	Mercy for Animals
Center for Food Safety	Northwest Environmental Defense Center	Columbia Riverkeeper	Oregon Physicians for Social Responsibility
Comunidades Amplifying Voices for Environmental and Social Justice	Pendleton Community Action Alliance	Environment Oregon	Public Justice Foundation
Humane Voters Oregon	World Animal Protection		

- Adopt Dairy Air Emissions Program
- Quantify and regulate air emissions from large dairy CAFOs

# Petition Requirements

ORS

183.390

## **Petitions requesting adoption of rule**

- An interested person may petition an agency to adopt, amend, or repeal a rule
- Not later than 90 days after the date of submission of a petition, the agency either shall deny the petition in writing or shall initiate rulemaking proceedings in accordance with ORS 183.335 (Notice).

OAR

137-001-0070

## **Petition to Promulgate, Amend, or Repeal Rule**

- The rule petitioner requests the agency to adopt, amend, or repeal.
- When a *new* rule is proposed, the petition shall set forth the proposed language in full.

# Agenda

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What is a dairy CAFO?



Regulatory history and authority



Petition summary and analysis



DEQ recommendation

# What is a Dairy CAFO: Definition

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Concentrated animal feeding operation (CAFO)

A lot or facility with:

- Animal (dairy cow) confinement in building, pen, or lot
- Wastewater treatment or discharge to waters of the state

Large Dairy CAFO = 700 or more mature dairy cows

# What is a Dairy CAFO: Air Emission Concerns

Source	Emissions
Animal housing	NH <sub>3</sub> , VOCs, CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, H <sub>2</sub> S
Manure handling & storage	NH <sub>3</sub> , VOCs, PM, H <sub>2</sub> S, CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O
Liquid storage & treatment	NH <sub>3</sub>
Feed types, storage & handling	VOCs, PM
Animal bedding	PM
Animal respiration	CO <sub>2</sub>
Enteric fermentation	CH <sub>4</sub>

# What is a Dairy CAFO: Air Emission Concerns

Pollutant	Health and Air Quality effects
Ammonia (NH <sub>3</sub> )	Human health impacts, PM2.5 precursor, environmental deposition
Volatile organic compounds (VOCs)	Human health impacts, ground-level ozone precursor
Methanol	Human health impacts
Particulate matter (PM)	Human health impacts
Hydrogen Sulfide (H <sub>2</sub> S)	Human health impacts, PM2.5 and acid rain precursor.
Greenhouse Gasses	Climate change
Nitrogen Oxides	Haze, atmospheric deposition, smog

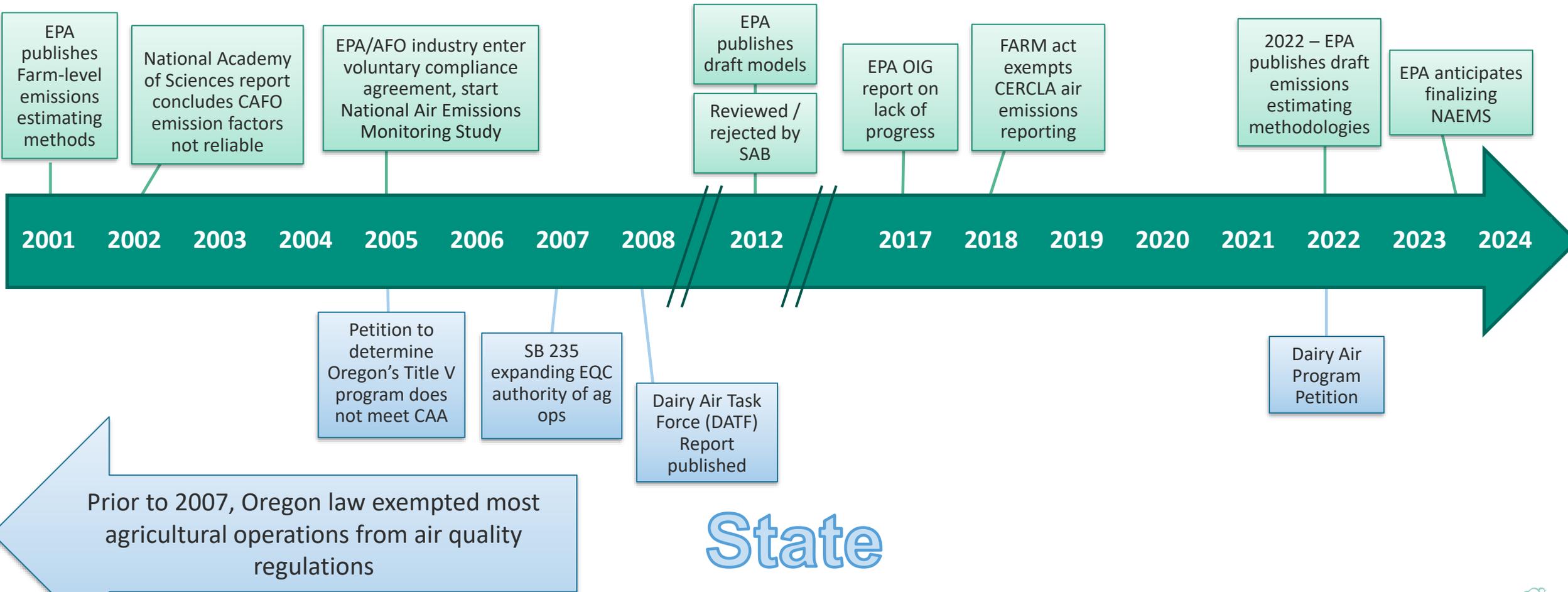
# What is a Dairy CAFO: Air Emission Controls

Source	BMPs
Animal housing	Ventilation, filters
Manure handling & storage	Rapid manure removal
Liquid storage & treatment	Covers, solids separation, aeration
Feed management	Feed types/additives, storage, removal
Animal bedding	Materials, keep aerobic
Animal respiration	Feed types, ventilation
Enteric fermentation	Feed types, ventilation, filters

# Regulatory History and Authority

## Federal

## State



Prior to 2007, Oregon law exempted most agricultural operations from air quality regulations

# Regulatory History and Authority

ORS 468A.020(2). Application of air pollution laws to agricultural operations is limited to the extent necessary to implement:

- **The federal Clean Air Act**
- **A recommendation of the Dairy Air Task Force**

ORS 468A.790. EQC and ODA shall enter into a MOU regarding air quality laws and agricultural operations

- **ODA may perform any function of DEQ**
- **Considerations for the MOU**

# Regulatory History and Authority: CAA

Pollutant	CAA Regulation
Ammonia	NAAQS (PM), Regional Haze
Volatile organic compounds	NAAQs (ozone), Major source
Methanol	HAP
Particulate matter	NAAQS (PM), Regional Haze, Major source
Hydrogen Sulfide	Major source
Greenhouse Gasses	
Nitrogen Oxides	NAAQS (NO <sub>2</sub> ), Regional Haze, Major source

# Regulatory History and Authority: DATF

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- Apply to *all* dairies with water quality CAFO permit
- Initial focus: Ammonia, methanol, odors
- Two phases – voluntary to regulatory with tax incentives
- Flexible BMPs
- DEQ / ODA collaboration
- Funds for DEQ, ODA, OHA, OSU

# Petition Summary and Analysis

## Scope

Confine 700 or more mature dairy cows

Liquid manure handling system

## Oversight

DEQ

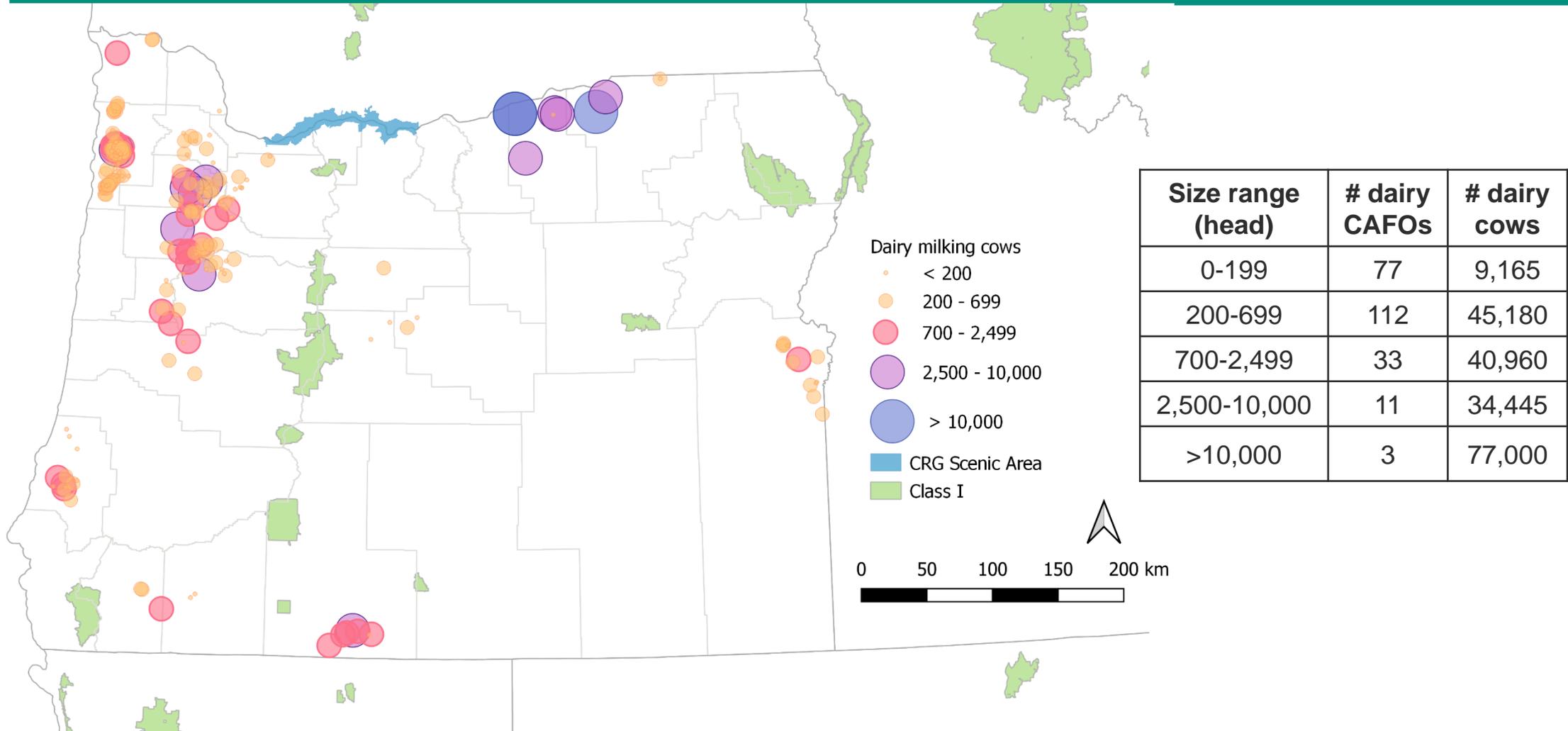
## Requirements

Emissions Estimate

2 Tiers

All tier BMPs

# Dairy CAFOs in Oregon



# Public Comment Themes

## Supporting Opinions (1,578 comments)

- Concern with emissions from mega-dairies
- Expand the program to include all livestock operations
- Climate change
- Impacts to vulnerable communities
- Health Impacts
- Visibility impacts

## Opposing Opinions (58 comments)

- Financial impacts
- No legislative budget or position authority
- Lack of authority due to Right to Farm act
- Wait for EPA to complete NAEMS
- Collaborate with ODA
- Other air quality issues are a higher priority

# *Current Emission Estimating Methods*

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## ➤ USDA DairyGEM

- ammonia, hydrogen sulfide, VOCs, and GHG emissions

## ➤ EPA NAEMS

- ammonia, hydrogen sulfide, particulate matter, and VOCs

## ➤ NEI, California Air Districts Emission Factors

# State-Wide Emissions

NEI 2017 Data	NH <sub>3</sub>	H <sub>2</sub> S	CH <sub>4</sub>	NO <sub>x</sub>	PM2.5	PM10	VOC
	All units in tons/year						
Area (less Dairies)	23,978	not in NEI	not in NEI	50,775	56,417	353,972	957,303
Dairy (as Area Sources)	4,001	not in NEI	not in NEI	not in NEI	203	977	320
Nonroad Mobile	30	not in NEI	1,081	13,886	1,406	1,482	15,635
On-road Mobile	1,313	not in NEI	1,301	65,196	2,171	4,114	33,896
Point	635	235,157	39,183	15,341	4,705	5,770	9,383
Total	29,957	235,157	41,565	145,198	64,902	366,315	1,016,537
Dairies % of total <sup>1</sup>	13%	na	na	na	0.31%	0.27%	0.03%

1. Total excludes exceptional events such as wildfires.

# Dairy GHG Emissions (2014)

Category	Enteric Fermentation	CH <sub>4</sub> Manure Management	N <sub>2</sub> O Manure Management	Total
	All units in tons CO <sub>2</sub> e			
Oregon statewide GHG emissions				60,410,000
Statewide agriculture emissions				5,171,000
All agriculture animals	2,563,700	474,157	131,361	3,169,217
All permitted CAFOs (2014 ODA data)	713,919	422,414	131,351	1,267,685
All dairies	522,167	394,282	47,291	963,739

# BMP Reductions

BMP type	Measure	PM	NH <sub>3</sub>	H <sub>2</sub> S	VOCs	GHGs
Animal housing	Electrostatic Precipitation	30-80%	---	---	---	---
Animal housing	Oil Spray/ Sprinkling	60-85%	0-30%	20-30%	---	---
Animal housing	Biofilters	80%	45-75%	80-95%	70-90%	---
Animal housing	Wet Scrubbers	60-90%	70-90%	---	50-90%	---
Manure handling & storage	Manure Additives	---	0-85%	0-80%	10-40%	0-60%
Manure handling & storage	Manure Storage Covers	---	50-95%	50-80%	---	30%
Manure handling & storage	Solid-Liquid Separation	---	0-10%	0-20%	---	---
Manure handling & storage	Anaerobic Digester	---	-50-30%	0-10%	60%	80-85%
Liquid storage & treatment	Lagoons oxygenation	---	-20-70%	-10-70%	---	---
Feed Management	Group and Phase Feeding	---	15-45%	---	---	---
Feed Management	Feed Additives	---	20-70%	30%	---	---
Feed Management	Processing, Storage, Delivery	---	20%	---	---	---
Feed Management	Dietary Formulation Changes	50-80%	30-50%	30-50%	---	---

# Findings

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1. Farm level emissions estimates
2. BMP reductions
3. Resource needs
  - DEQ/ODA Memorandum of Understanding
  - Research
  - Outreach
  - Program development & implementation

# Ongoing Work

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- Follow EPA NAEMS work
- Continue to examine Environmental Justice priorities
- Continue to examine Regional Haze impacts

# DEQ Recommendation on Petition

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DEQ recommends that the Environmental Quality Commission (EQC), per the statutory requirements of ORS 183.390, deny the Petition to Promulgate Dairy Air Emissions Regulatory Program in writing.

Recommended motion language:

*“I move that the Oregon Environmental Quality Commission deny the petition in writing on new rules proposed by the Food & Water Watch and co-petitioners on August 17, 2022.”*