
Air Quality Update 2024

Bryce Bird, Director
May 15, 2024



UTAH DEPARTMENT *of*
ENVIRONMENTAL QUALITY
**AIR
QUALITY**

Air Conservation Act

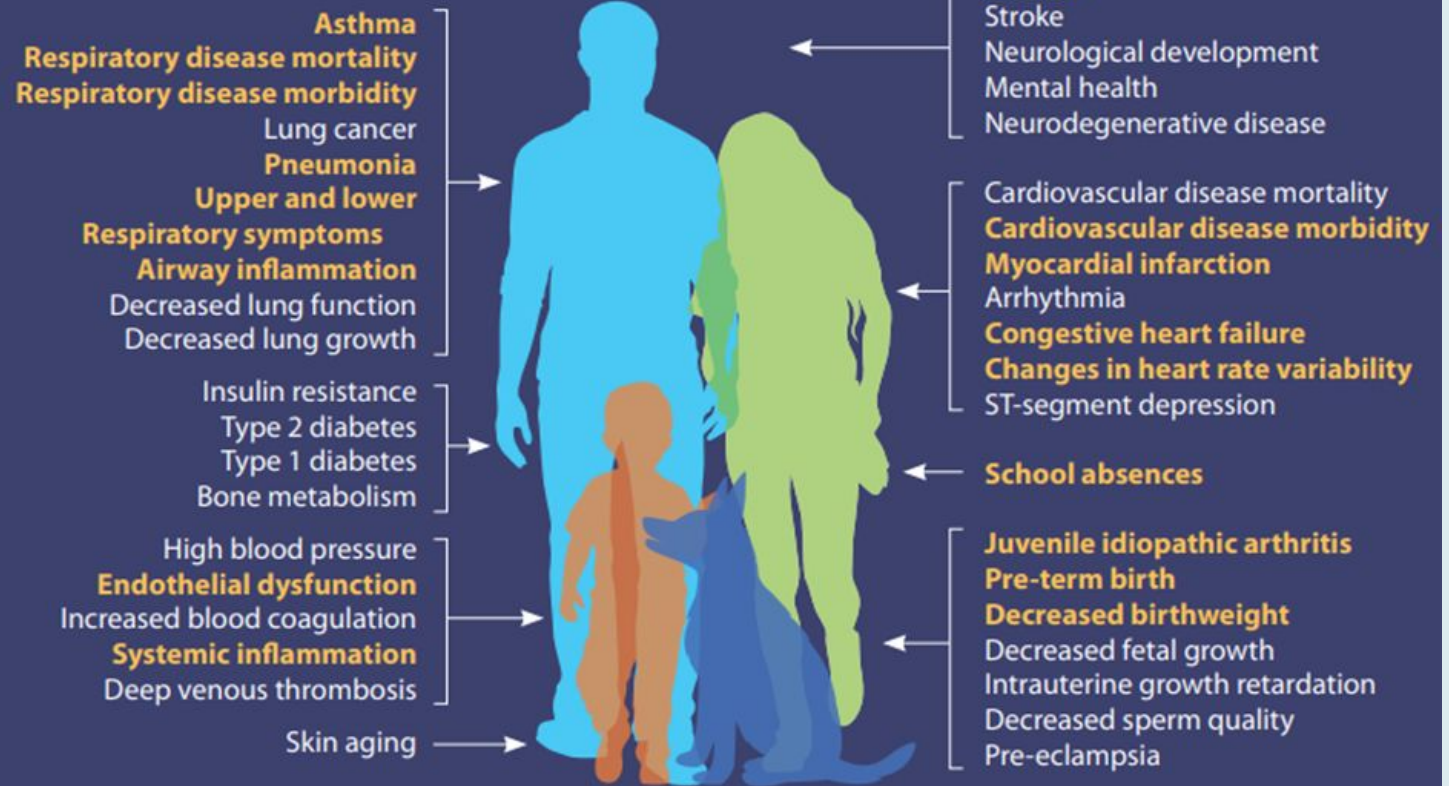
It is the policy of this state and the purpose of this chapter to achieve and maintain levels of air quality which will protect human health and safety, and to the greatest degree practicable, prevent injury to plant and animal life and property, foster the comfort and convenience of the people, promote the economic and social development of this state, and facilitate the enjoyment of the natural attractions of this state. (Utah Code 19-2-101)



Air Quality Health Impacts

Health Effects of Air Emissions and Pollutants

Utah-based health studies highlighted in yellow



Annual Report

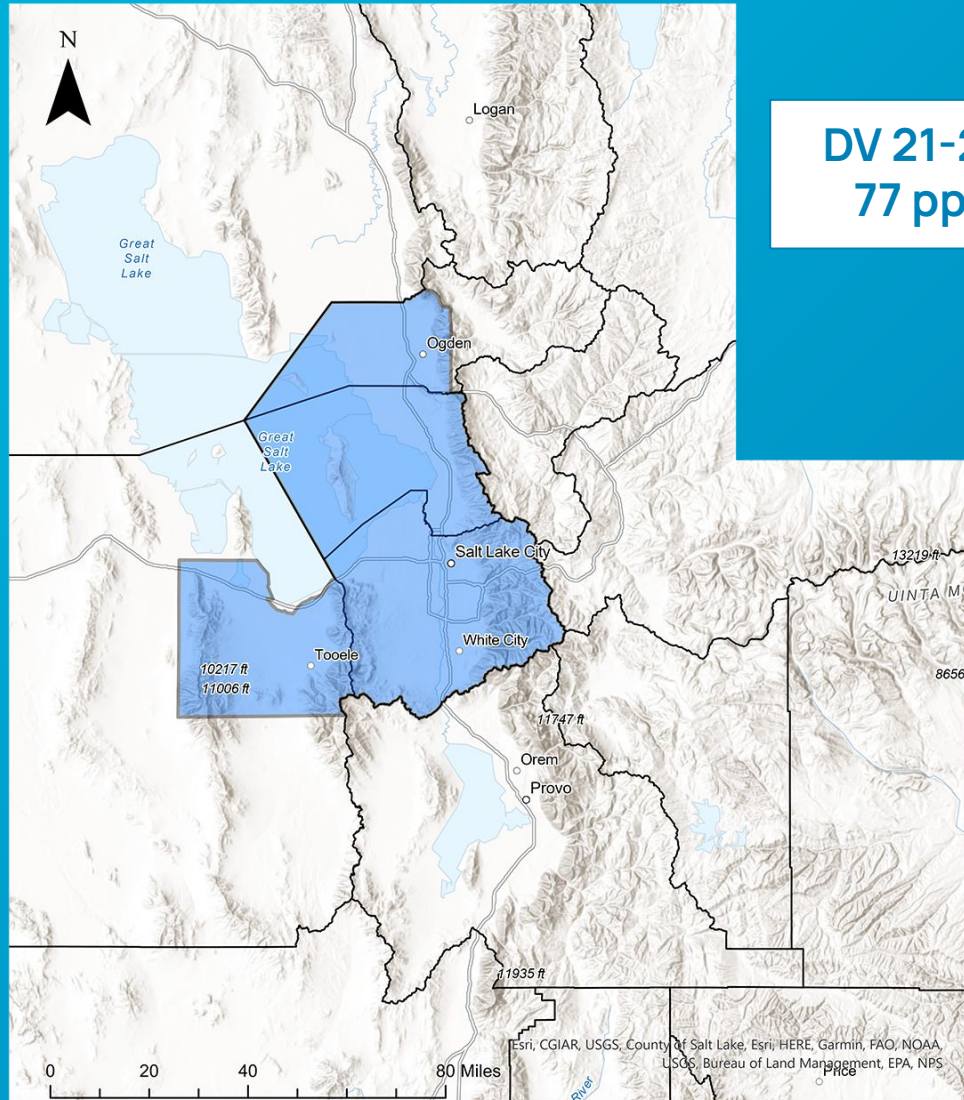




Serious Ozone SIP Planning

Northern Wasatch Front

Northern Wasatch Front Ozone Nonattainment Area



Pollution

The Northern Wasatch Front is not meeting the 2015 NAAQS for ozone: 70 ppb.

Creating a Plan

The State submitted a moderate State Implementation Plan (**SIP**) and has started the process of planning for a serious SIP. Redesignation to serious expected early 2025.

Why is it so important to attain the standard?

There are serious consequences if the area fails to meet SIP requirements and/or attain the health-based standard.



Reduce ozone to protect human health and improve quality of life along the Wasatch Front



Potential freeze to federal highway funds



Federal plan could be far more strict (FIP)



“Bump up” in NAA classification will require even more costly controls

Ozone Requirements By Classification

2015 OZONE NAAQS

Initial Designation/Classification Aug. 2018
 Areas are reclassified (i.e. "bumped-up")
 to the next highest classification
 within 6-months of
 failing to attain

EXTREME
 Attainment Date Aug. 2038
 SIP due Jan. 2034

SEVERE (15, 17)
 Attainment Date Aug. 2033,35
 SIP due Jan. 2029, 2031
 Reformulated Gasoline required

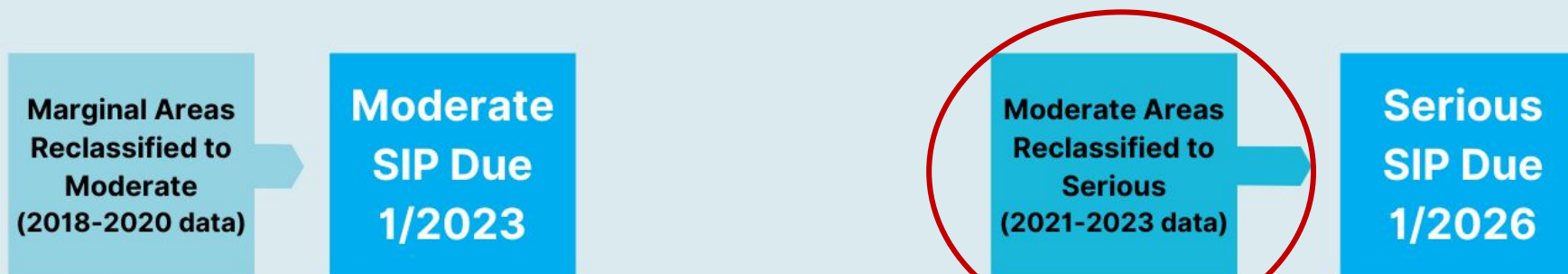
SERIOUS
 Attainment Date Aug. 2027
 SIP due Jan. 2026

MODERATE
 Attainment Date Aug. 2024
 SIP due Jan. 2023

MARGINAL
 Attainment Date Aug. 2021

		NSR Offset	Major Source Threshold
	TRAFFIC CONGESTION CONTROLS (if appropriate)	1.5:1	10 tpy
	CLEAN FUELS REQUIREMENT FOR BOILERS		
	PENALTY FEE PROGRAM FOR MAJOR SOURCES	1.3:1	25 tpy
	VMT GROWTH DEMONSTRATION (& TCMs if needed)		
	VMT REPORTING	1.2:1	50 tpy
	NSR REQUIREMENTS FOR EXISTING SOURCE MODS		
	CLEAN FUELS PROGRAM OR SUBSTITUTE MEASURE FOR LARGER POP. AREAS		
	MODELED DEMO OF ATTAINMENT		
	MILESTONE DEMONSTRATIONS and CONTINGENCY MEASURES FOR RFP		
	3% ANNUAL RFP UNTIL ATTAINMENT		
	ENHANCED I/M for larger population areas		
	CONTINGENCY MEASURES FOR FAILURE TO ATTAIN	1.15:1	100 tpy
	ENHANCED MONITORING PLAN		
	BASIC VEHICLE I/M for larger population areas		
	15% VOC ROP or 15% VOC/NOx RFP (OVER 6 YEARS)		
	VOC/NOx RACT for MAJOR/CTG SOURCES		
	ATTAINMENT DEMONSTRATION		
	NONATTAINMENT NEW SOURCE REVIEW PROGRAM	1.1:1	100 tpy
	EMISSIONS STATEMENTS		
	BASILINE EMISSIONS INVENTORY (EI)		
	PERIODIC EMISSIONS INVENTORY UPDATES		

Northern Wasatch Front Ozone Planning Timeline



Implement Moderate Area Controls

Implement Serious Area Controls



Marginal Attainment Year
Date: 8/3/2021

Moderate Attainment Year
Date: 8/3/2024

Serious Attainment Year
Date: 8/3/2027

The area will not attain the standard for Moderate - current data (21-23) at 77 ppb

<https://deq.utah.gov/air-quality/northern-wasatch-front-moderate-ozone-sip-technical-support-documentation#supporting-tsd>

SIP Elements for 2015 Ozone NAAQS

Utah Ozone Nonattainment Area Planning & Control Requirements

Utah Attainment	Years to Attain	Control Requirements	NSR Offset Ratio	Major Source Threshold
2051 Extreme	20	Traffic Congestion Controls Clean Fuels Requirement for Boilers	1.5 : 1 Extreme	10 TPY
2036 Severe	15-17	Penalty Fee Program Vehicle Miles Travelled Growth Demonstration Reformulated Gasoline CAA 211(k)(10)(D)	1.3 : 1 Severe	25 TPY
2027 Serious	9	Vehicle Miles Travelled Reporting New Source Review Requirements Clean Fuels Program or Substitute Measure Modeled Attainment Demonstration Milestone Demonstrations and Contingency Measures 3% Annual Emissions Reductions Until Attainment Enhanced Vehicle Emission Inspection/Maintenance Program	1.2 : 1 Serious	50 TPY
2021 Moderate	6	Contingency Measures for Failure to Attain Enhanced Monitoring Plan Basic Vehicle I/M for Larger Population Areas 15% VOC Emission Reduction (Reasonable Further Progress) VOC/NOx Reasonably Available Control Technology for Major Sources Attainment Demonstration	1.15 : 1 Moderate	100 TPY
2018 Marginal	3	Nonattainment New Source Review Program Emissions Statements Baseline Emissions Inventory Periodic Inventory Updates	1.1 : 1 Marginal	100 TPY

Intermountain West Ozone Challenges

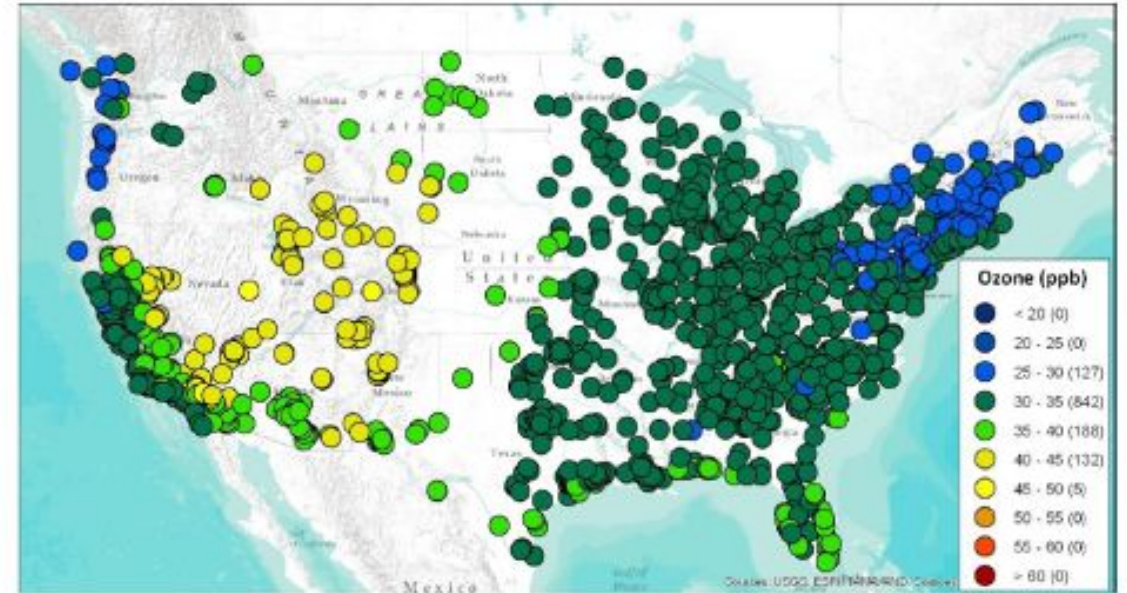
Utah faces a range of challenges when working to reduce ozone:

- High elevation
- Natural emissions of VOCs
- Transported pollutants
- Wildfire emissions
- Utah is one of the fastest growing states in the nation

~ **80%** of ozone and ozone-forming emissions are naturally occurring or transported to Utah.

Summertime average background concentrations can be as high as **50 ppb**.

Background Ozone in the Intermountain West

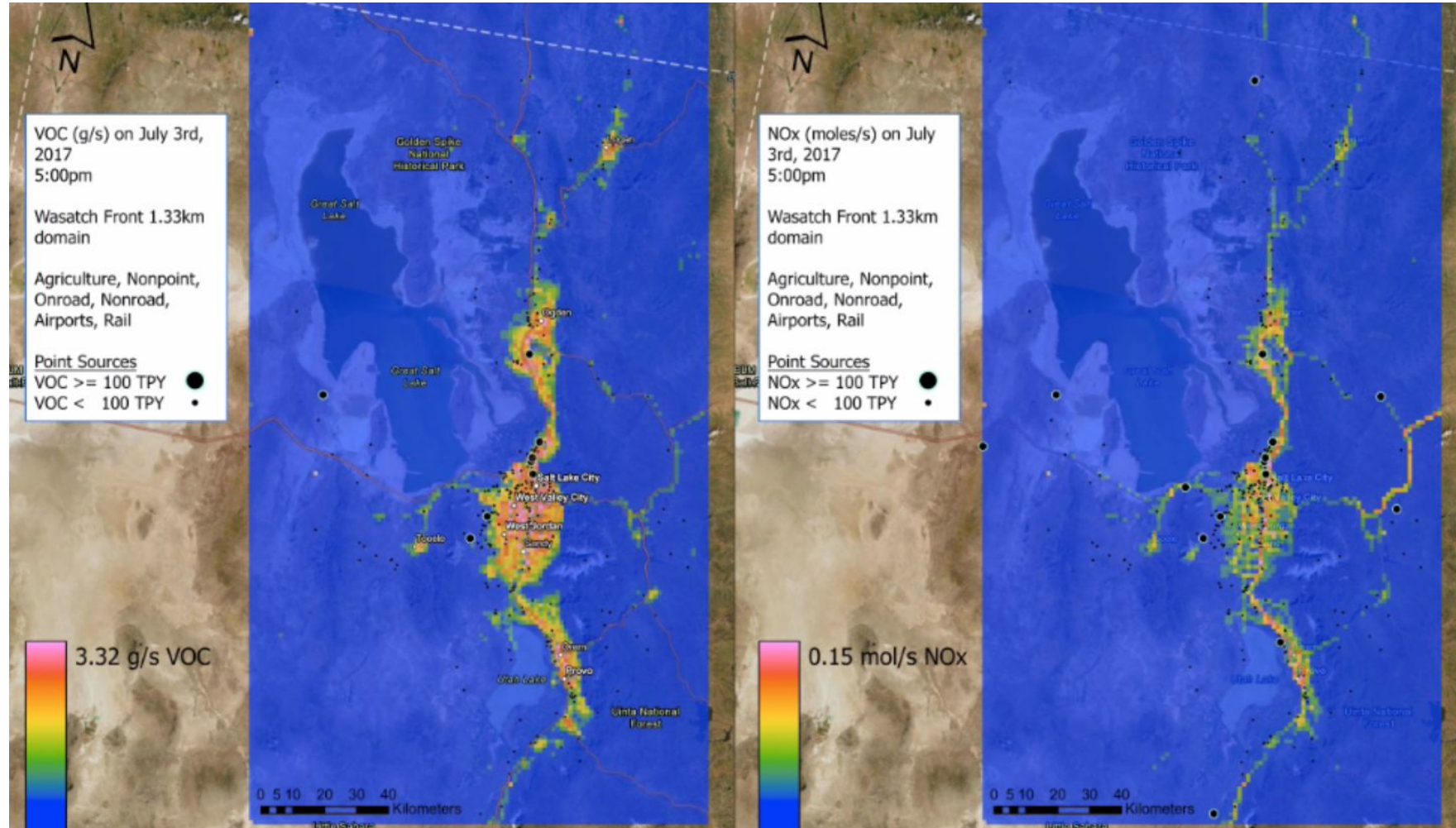


CMAQ estimates of **average** background (USB) ozone at monitoring locations across the U.S. in 2007

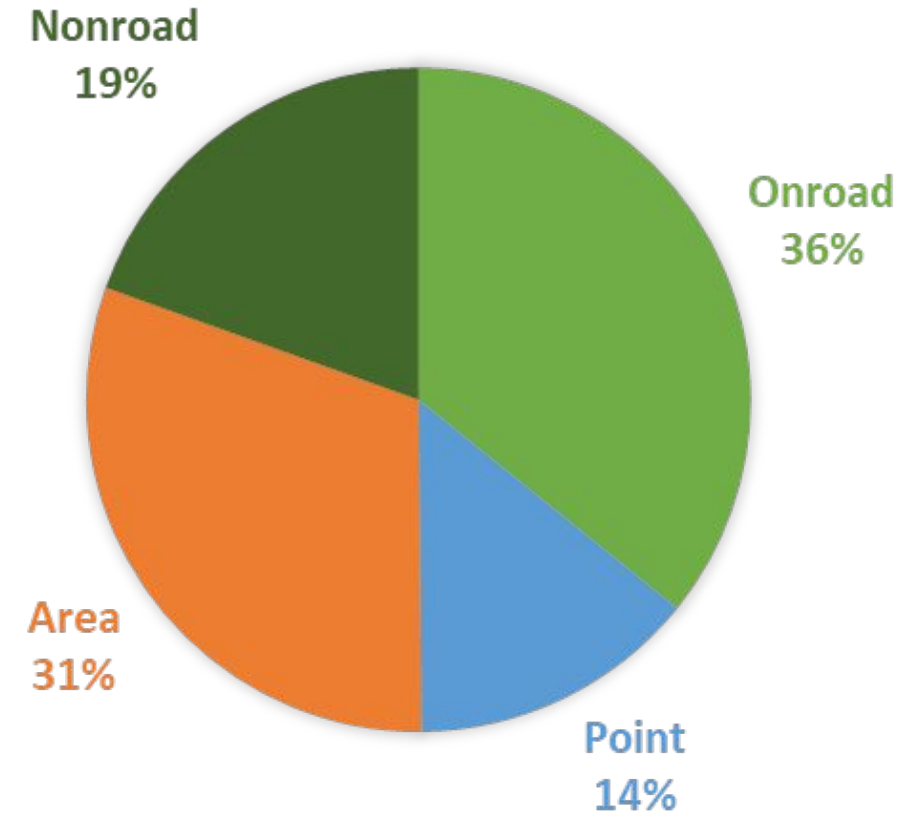
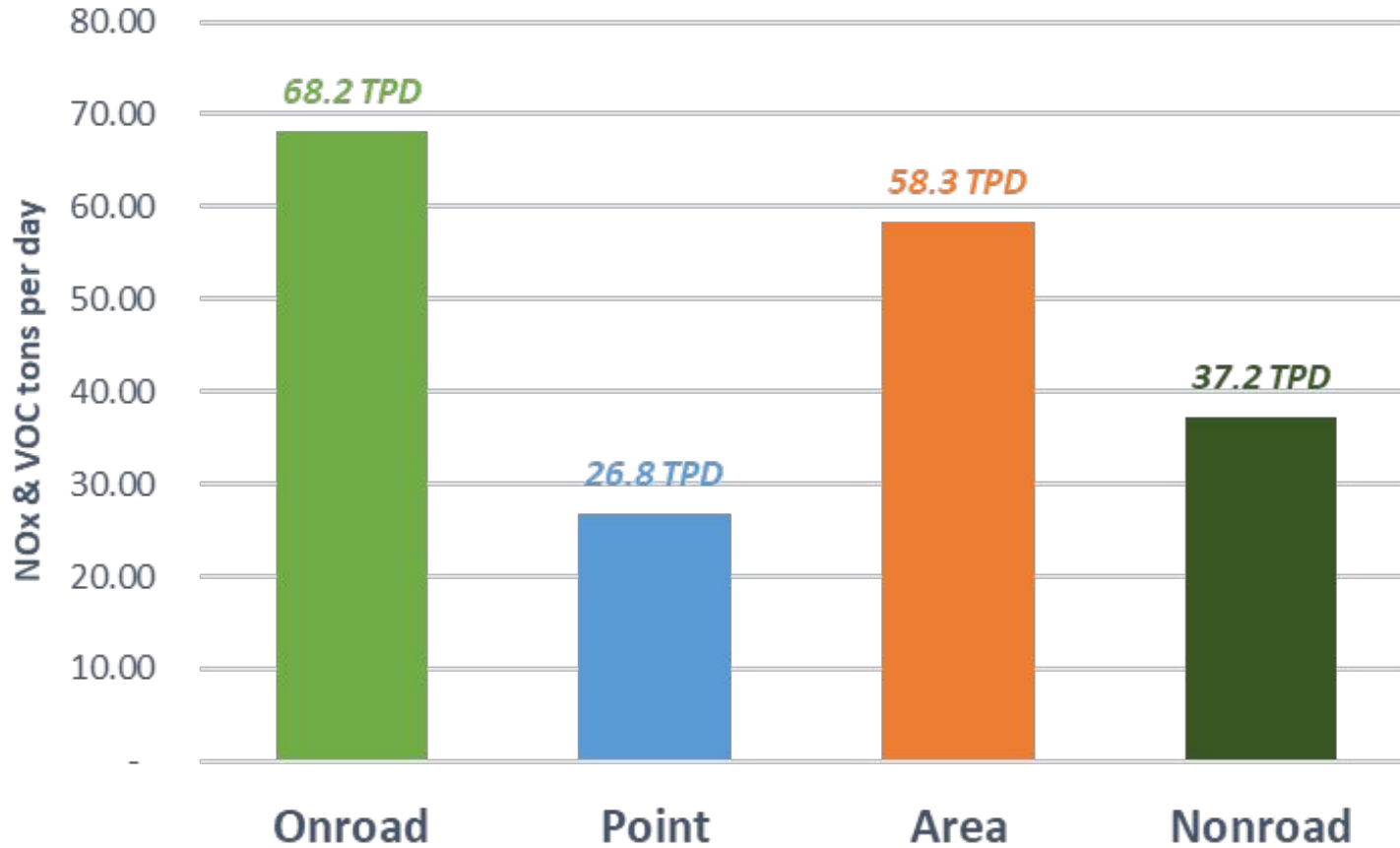
EPA modeled background ozone concentrations in the continental United States. This demonstrates the effect of elevation and transport on background ozone concentrations in the west.

“background ozone can exceed 60 ppb in the intermountain west”

Wasatch Front Urban Precursor Emissions

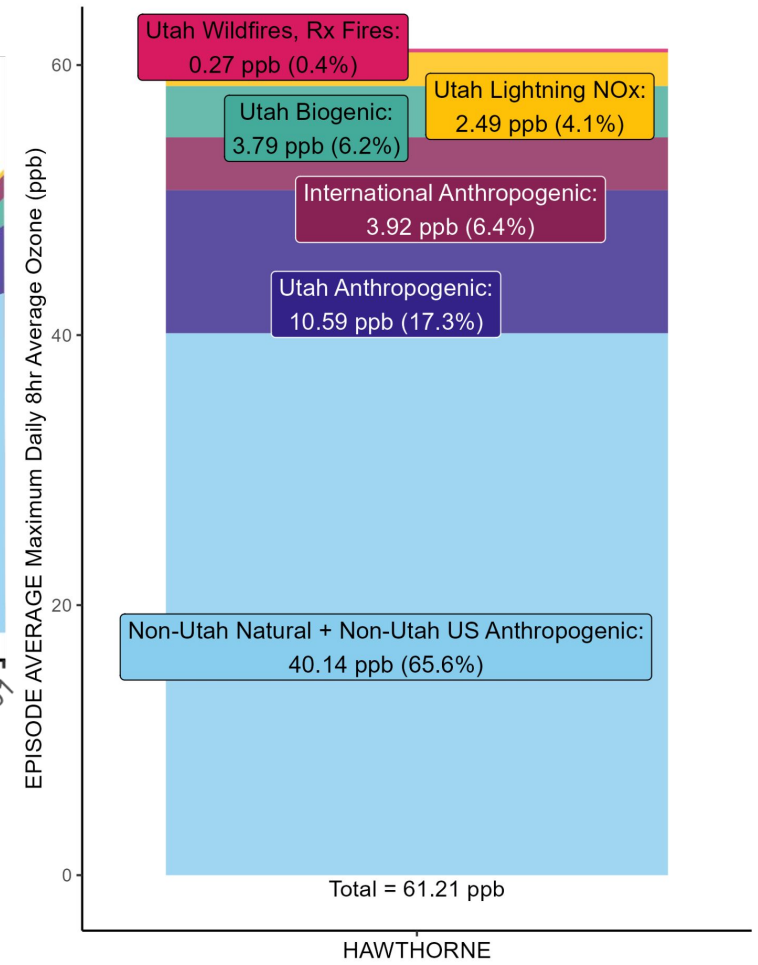
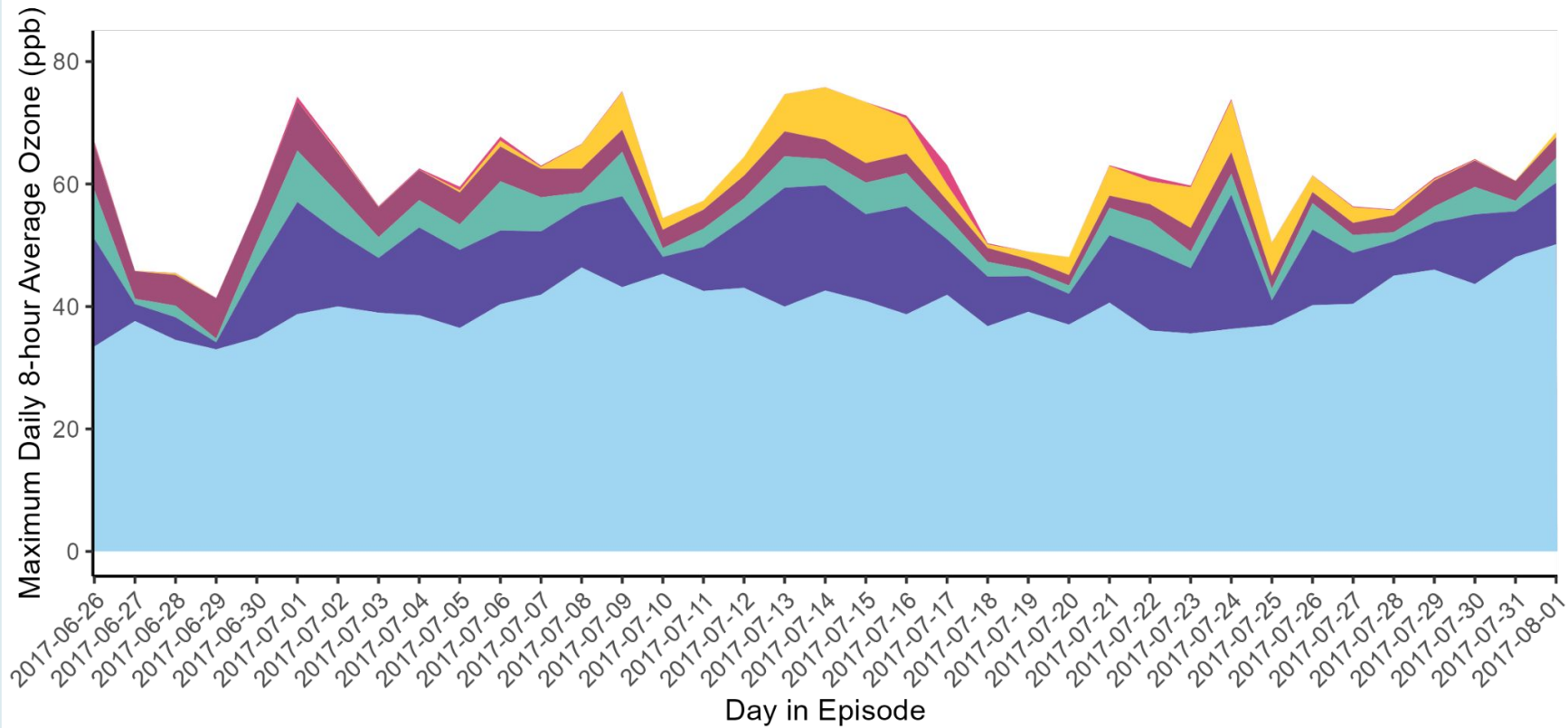


Man-Made NOx and VOC Emissions in the Northern Wasatch Front on an average “ozone season” day



More than half of anthropogenic emissions driving local ozone formation are very difficult to regulate at the state level

Ozone Source Contributions



Ozone Attainment Plan

Clean Air Act Requirements

Requirements for SIP approval

Rules in Progress

Rules with short and long term outcomes that meet CAA requirements and get area closer to attainment

Real World Solutions

Results from studies will inform future policy to more effectively reduce ozone

 Clean Air Act 179B

Prevent serious nonattainment and allow time for real world solutions

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Real World Solutions

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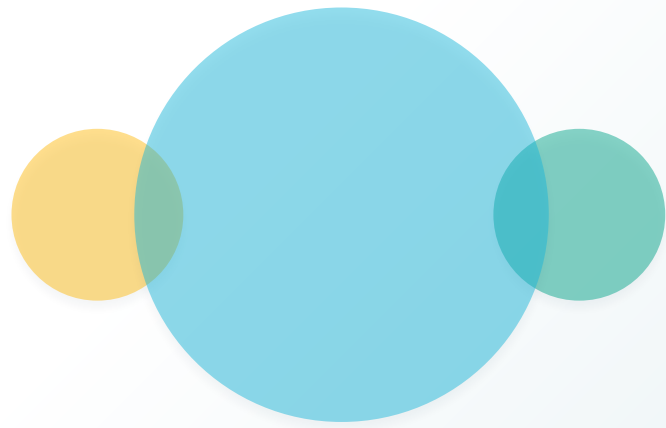
Rules help meet 15% requirement

Research to find what rules are most effective



Clean Air Act 179B

Prevent serious nonattainment and allow time for real world solutions



Rules in Progress

Rules with short and long term timelines that meet CAA requirements and get uarea closer to attainment

Short Term (1-3 Years)

- Gas dispensing rule
- Locomotive inventory reporting
- Small 2-stroke lawn equipment
- Major Source RACT Updates

Long Term (3+ Years)

- Refinery tank controls
- Warm mix asphalt
- Composting
- Metal recycling
- Industrial baking
- Halogen reductions (HB 220)
- Non-road equipment rules (SB 136)
- Low volatility gasoline (CAA required)

Utah Focused Scientific Advancements

**Utah Summer
Ozone Study
(USOS)**

July 2024

**Photochemical
Assessment
Monitoring**

**Updated
Photochemical
Modeling**



NOAA DHC-6-300 twin otter plane

Photo from UWFPS NOAA study

Winter 2017

Regulatory Status of Uinta Basin

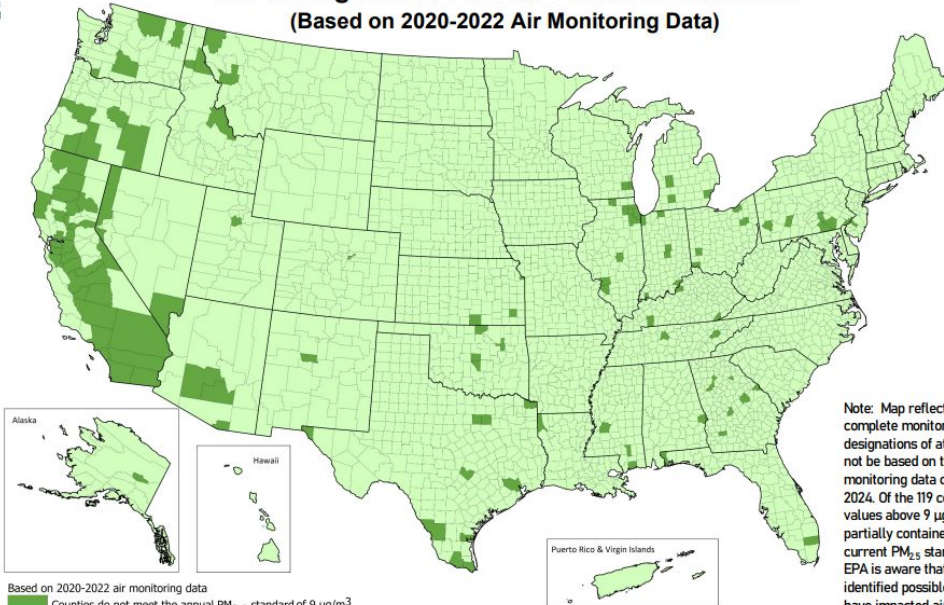
EPA proposed second extension remain marginal nonattainment with no requirement to create a SIP.



2024 PM_{2.5} NAAQS



Most Counties with Monitors Already Meet the Strengthened Particle Pollution Standard (Based on 2020-2022 Air Monitoring Data)



Based on 2020-2022 air monitoring data
Counties do not meet the annual PM_{2.5} standard of 9 ug/m³
This information is provided for illustrative purposes only and is not intended to predict the outcome of any forthcoming designations process.

Note: Map reflects monitored counties with complete monitoring data. Future final designations of attainment/nonattainment will not be based on these data, but likely on monitoring data collected between 2022 and 2024. Of the 119 counties with 2020-2022 design values above 9 ug/m³, 59 counties are totally or partially contained in nonattainment areas for current PM_{2.5} standards. In years 2021 and 2022, EPA is aware that some states have already identified possible exceptional events that may have impacted air quality in the US and may be relevant to designations decisions.

Retained all PM₁₀ standards

Retained 24-hr PM_{2.5} std at 35ug/m³

Decreased annual PM_{2.5} std from 12ug/m³ to 9ug/m³

Monitoring network changes for new sites

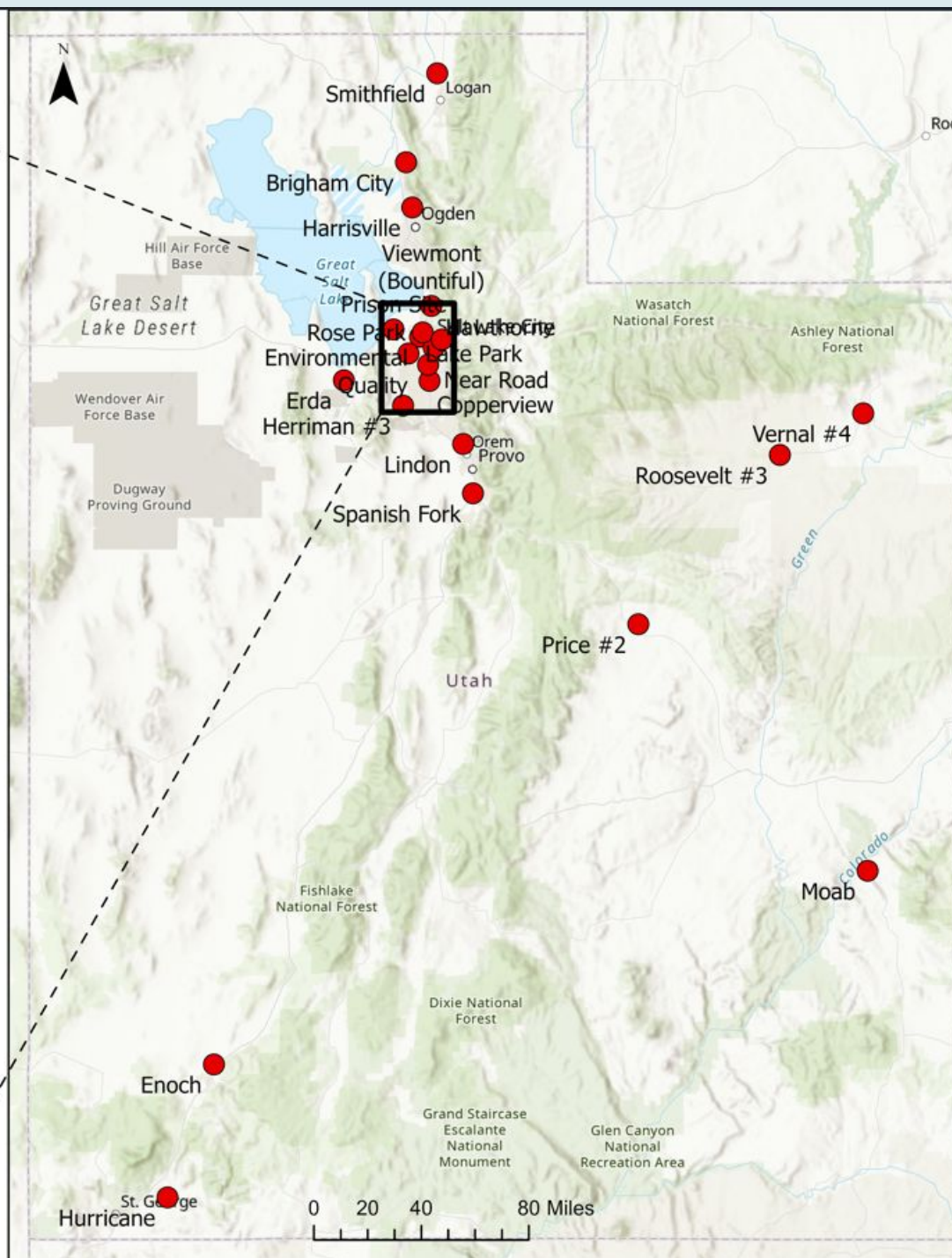
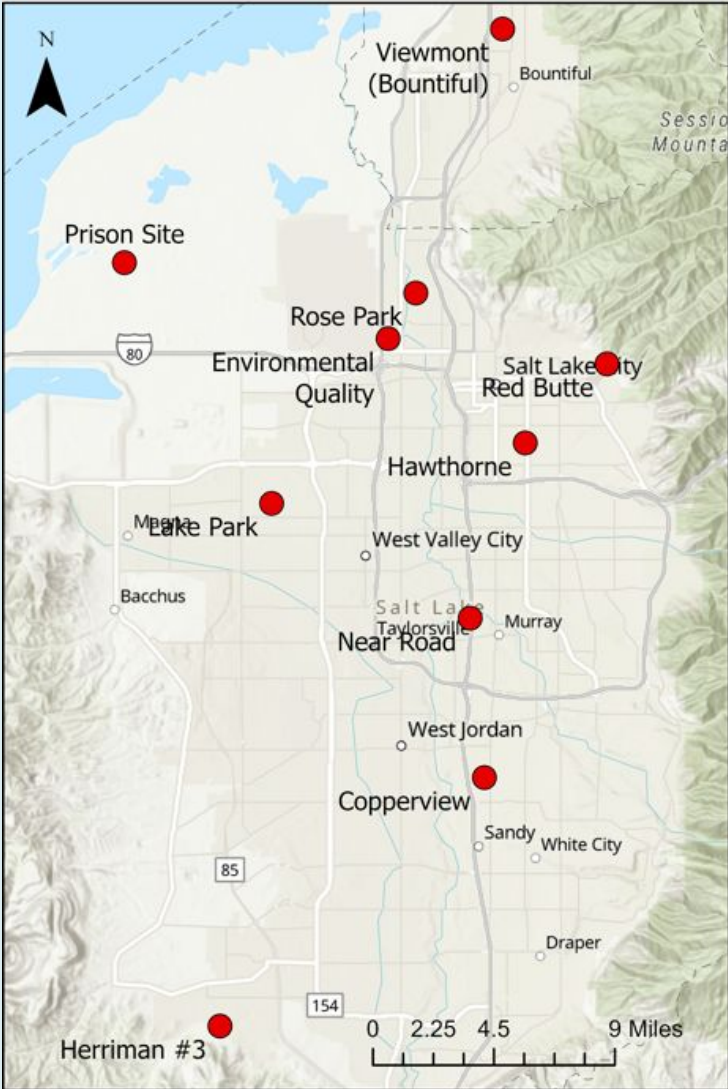
Revised AQI

NSR modeling impacted when rule is published

● PM_{2.5} monitors

All monitors in compliance, except near-road: 9.3ug/m³

Will work on excluding in designation recommendation



Esri, NASA, NGA, USGS, Esri, TomTom, Garmin, FAO, NOAA, USGS, Bureau of Land Management, EPA, NPS, USFWS, County of Salt Lake, Utah Geospatial Resource Center, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS, Esri, USGS

Oil and Natural Gas Operations Methane Rules

- 0000b - new facilities as of Dec. 2022
- 0000c - existing facilities



0000b & 0000c

- Fugitive emissions monitoring at most well sites
- Enhanced capture and destruction at all well sites and tank batteries
- Zero emission pneumatic controllers and pumps

New Programs

- Super Emitter
- Well Closures

OOOOC - Existing source plans



Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants

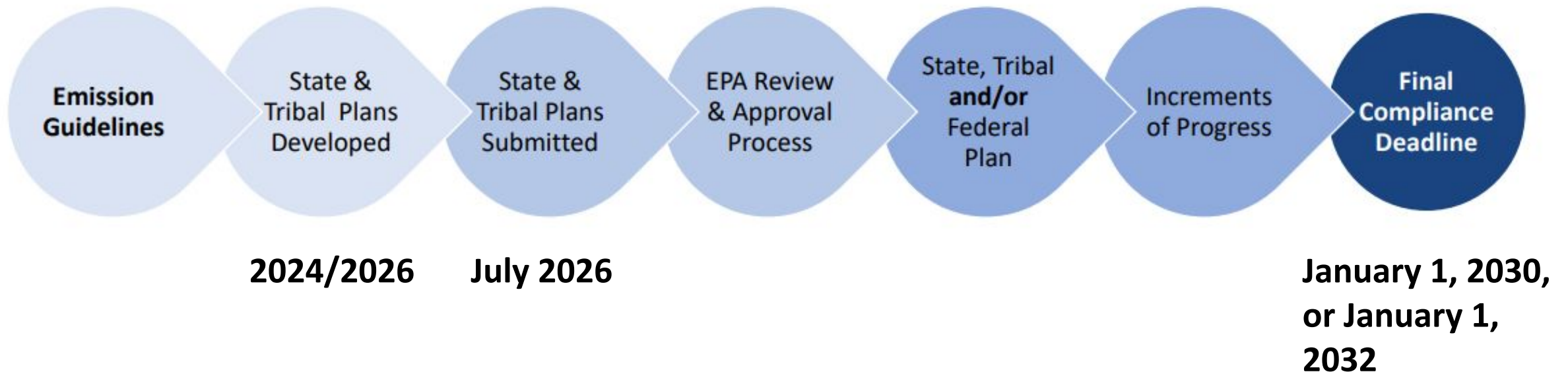
- TTTT - Standards for existing Electric Generating Units
- TTTTa - New or Modified EGUs
- UUUUb - State Designated Facility Plans



Performance Standards

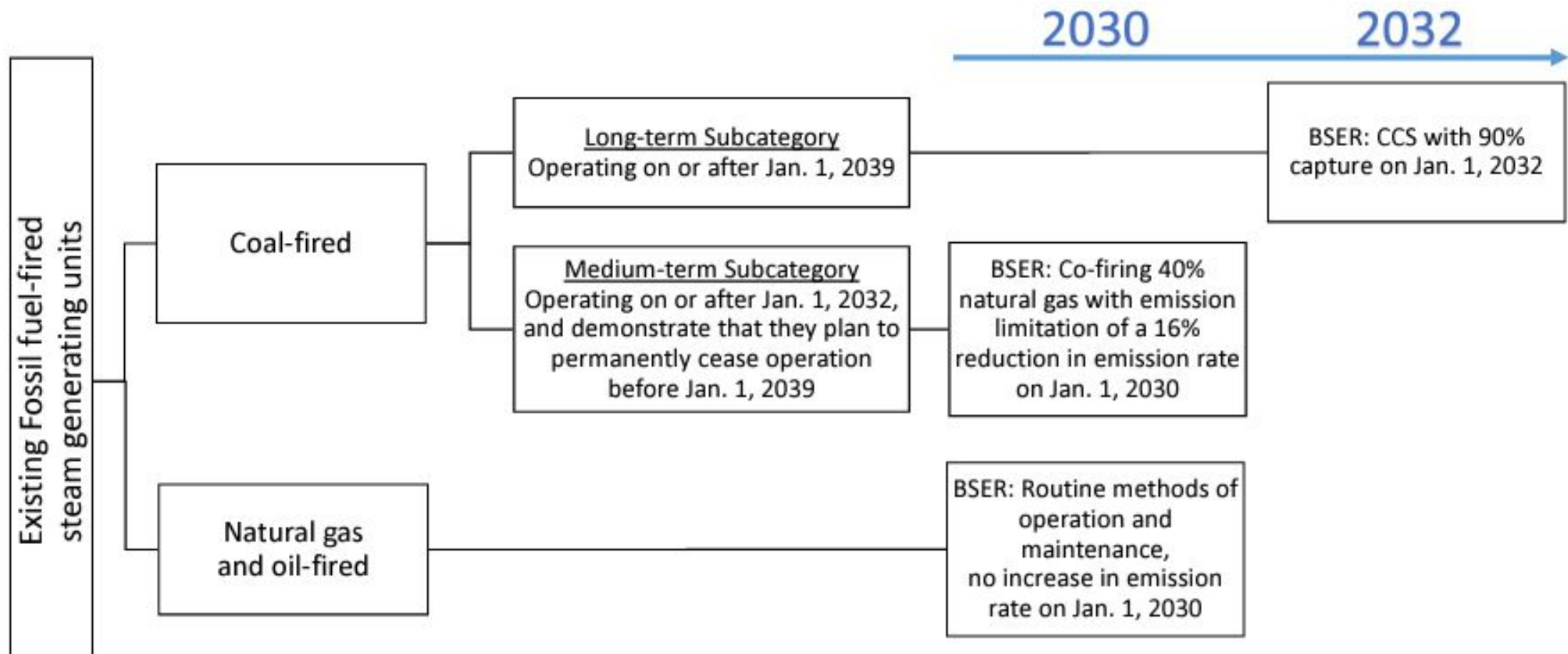
- New gas-fired combustion turbines
- Existing coal-fired steam EGUs
- Existing oil and natural gas-fired steam EGUs

UUUUb - State Plan Timeline



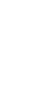
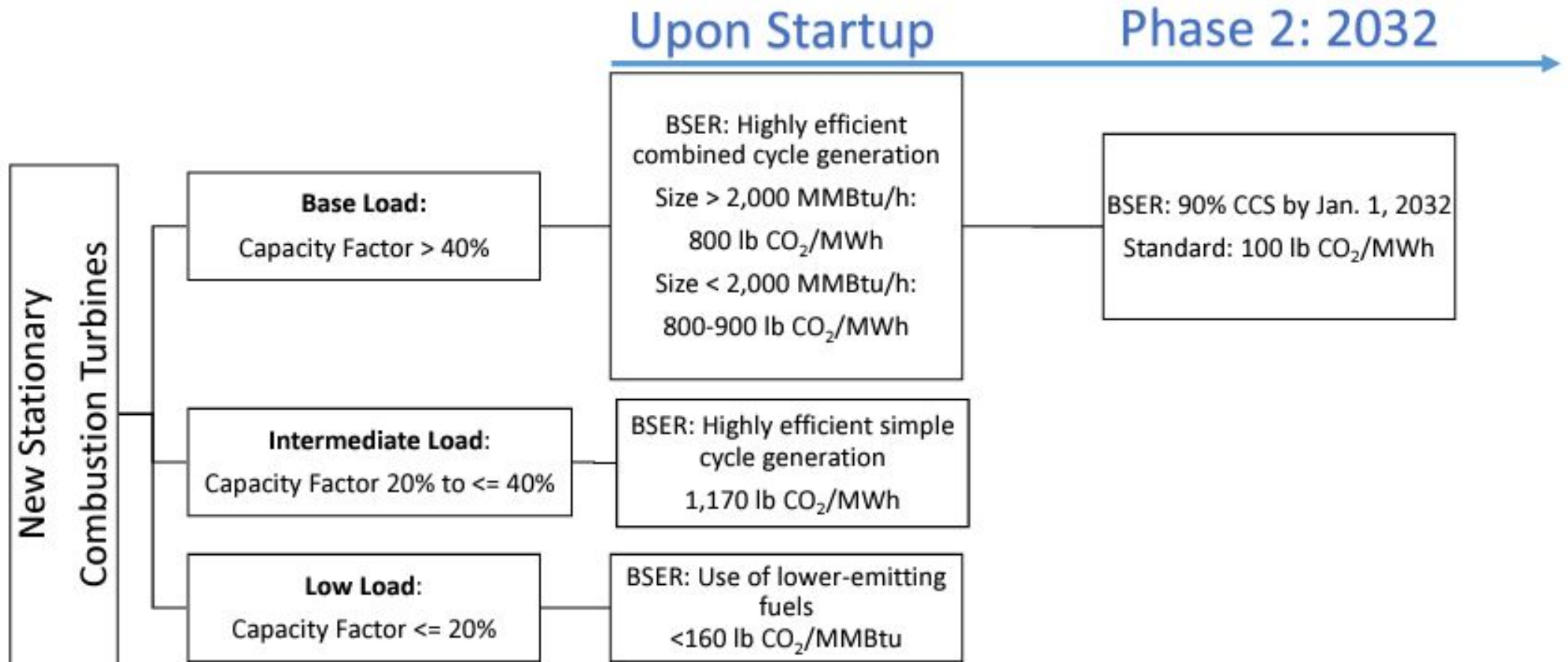
Emissions Guidelines for Steam EGUs

- Two subcategories for existing coal-fired units, depending on operating horizon: (1) Units operating on or after Jan. 1, 2039 and (2) Units that are operating on or after Jan. 1, 2032, and demonstrate they plan to permanently cease operation before Jan. 1, 2039
- Units that demonstrate they plan to permanently cease operations before Jan. 1, 2032 are not subject to these standards



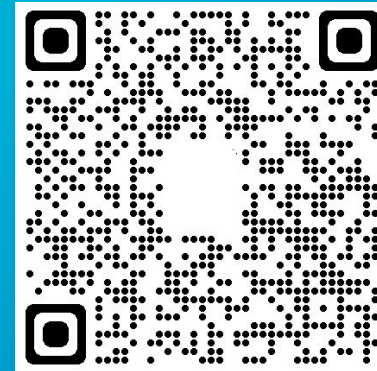
Final Standards for New Stationary Combustion Turbines

- Standards effective from date of proposal publication (May 23, 2023)
- Three subcategories: base load, intermediate load, low load
- Standards are technology neutral, affected sources may comply with it by co-firing hydrogen



Air Quality Incentive Programs

- Clean Fleet Program
- Charge Your Yard
- Workplace EV Charging
- Conversion to Alternative Fuel
- Wood Stove Conversion Assistance
- Vehicle Repair and Replacement Assistance Program





Beehive Emissions Reduction Plan

Multi-phase effort to reduce emissions through statewide coordination and planning.





Thank you



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