Air Quality Update 2024

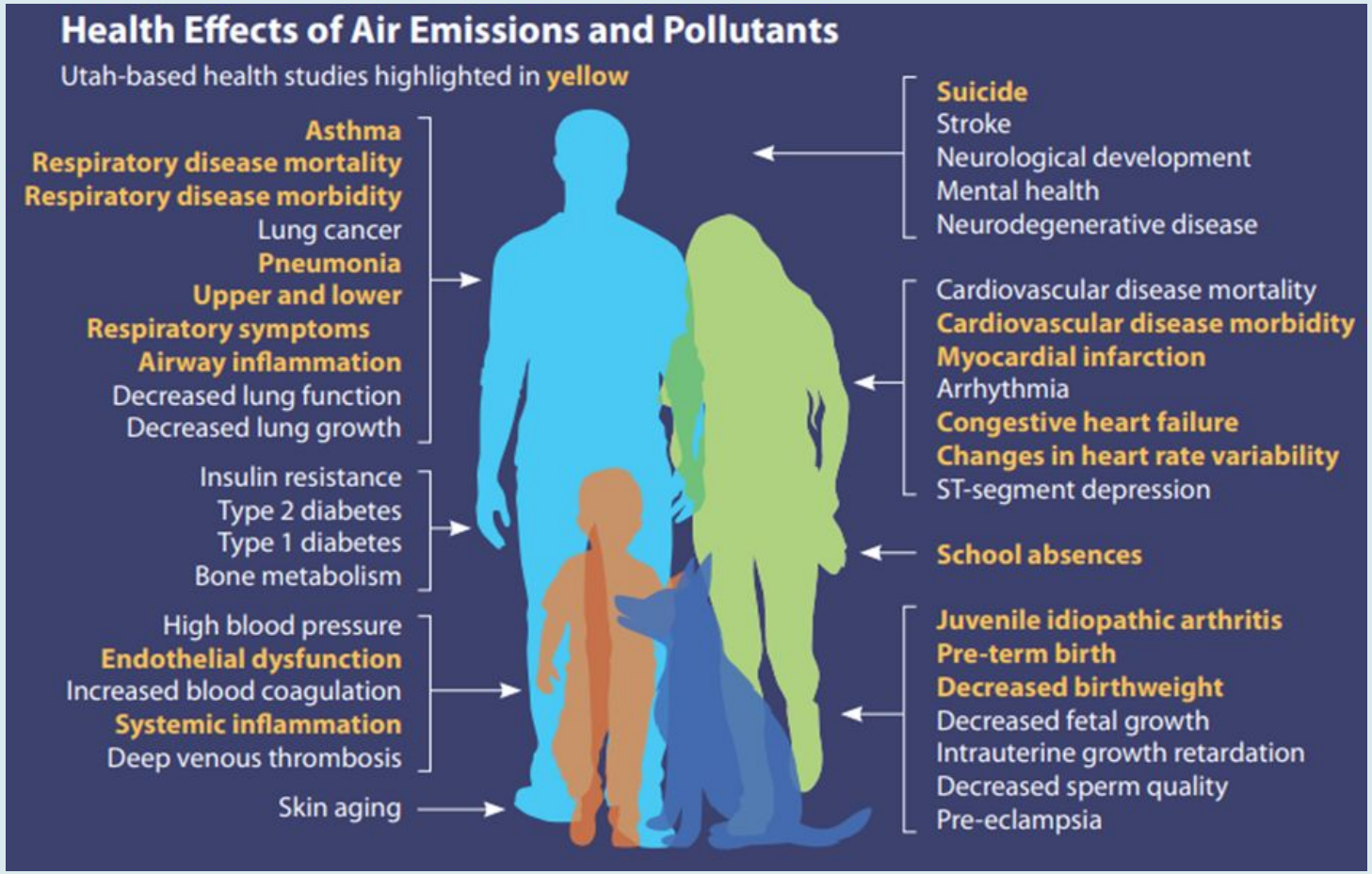
Bryce Bird, Director
May 15, 2024

UTAH DEPARTMENT *of* ENVIRONMENTAL QUALITY
AIR QUALITY

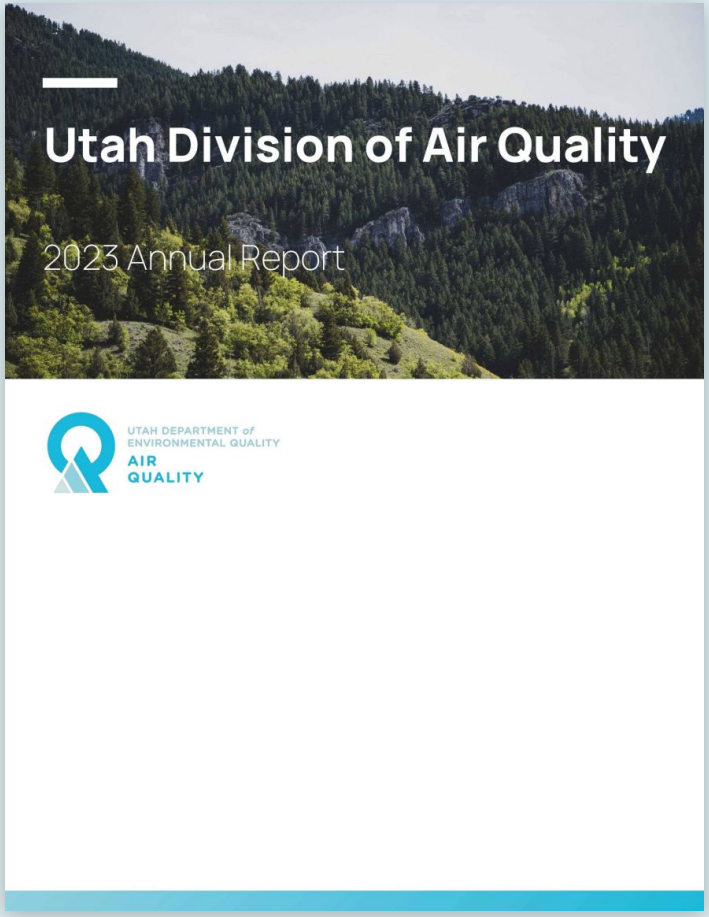
Air Conservation Act

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



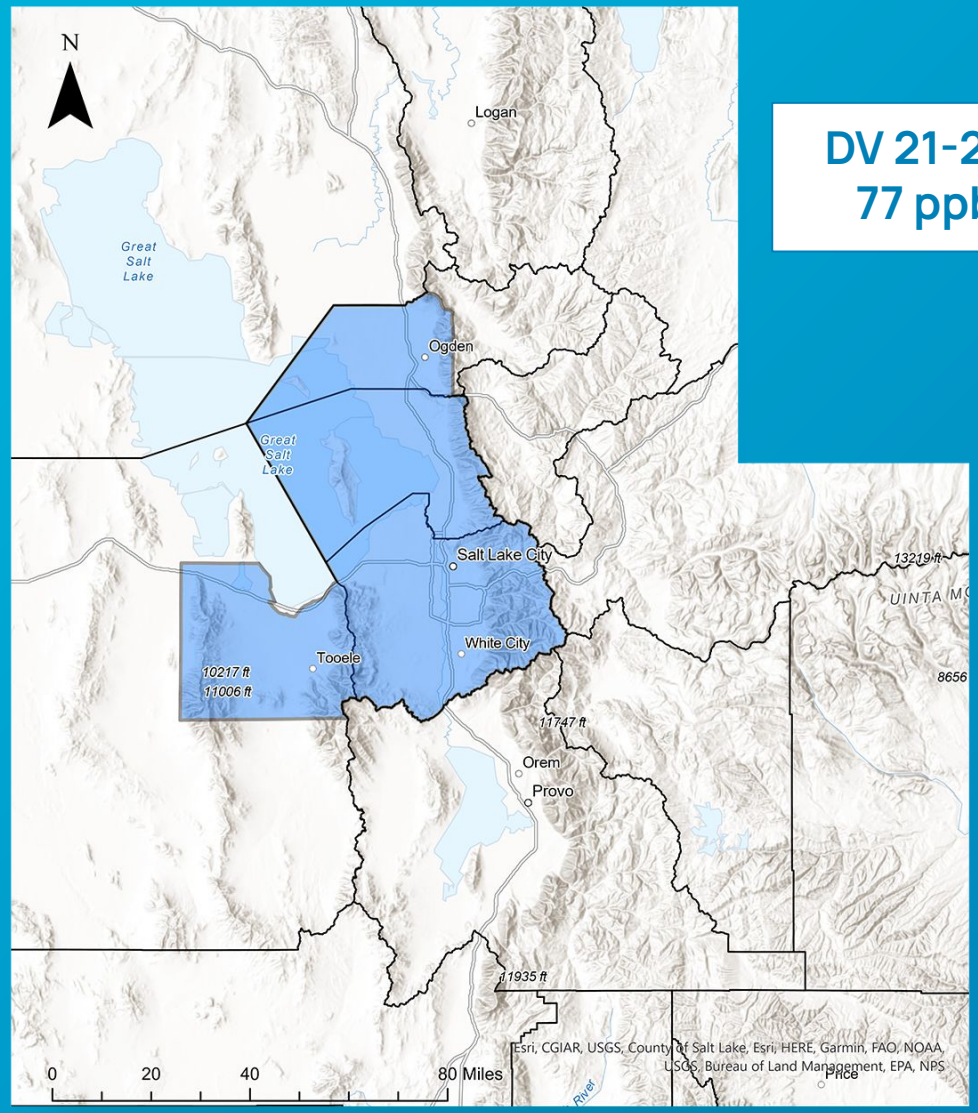
Annual Report



Serious Ozone SIP Planning

Northern Wasatch Front

Northern Wasatch Front Ozone Nonattainment Area



DV 21-23: 77 ppb

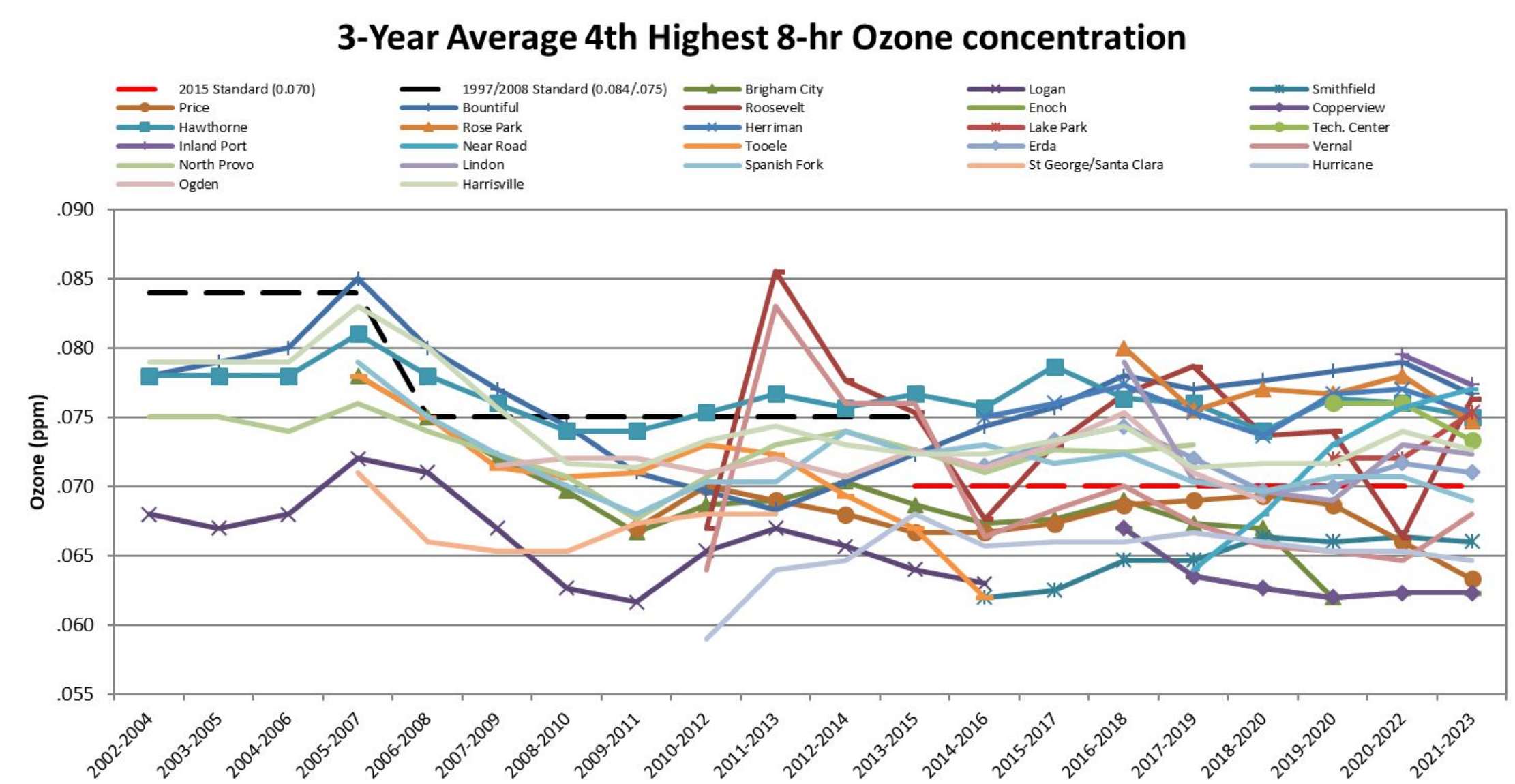
Pollution

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.

Ozone Nonattainment Planning



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

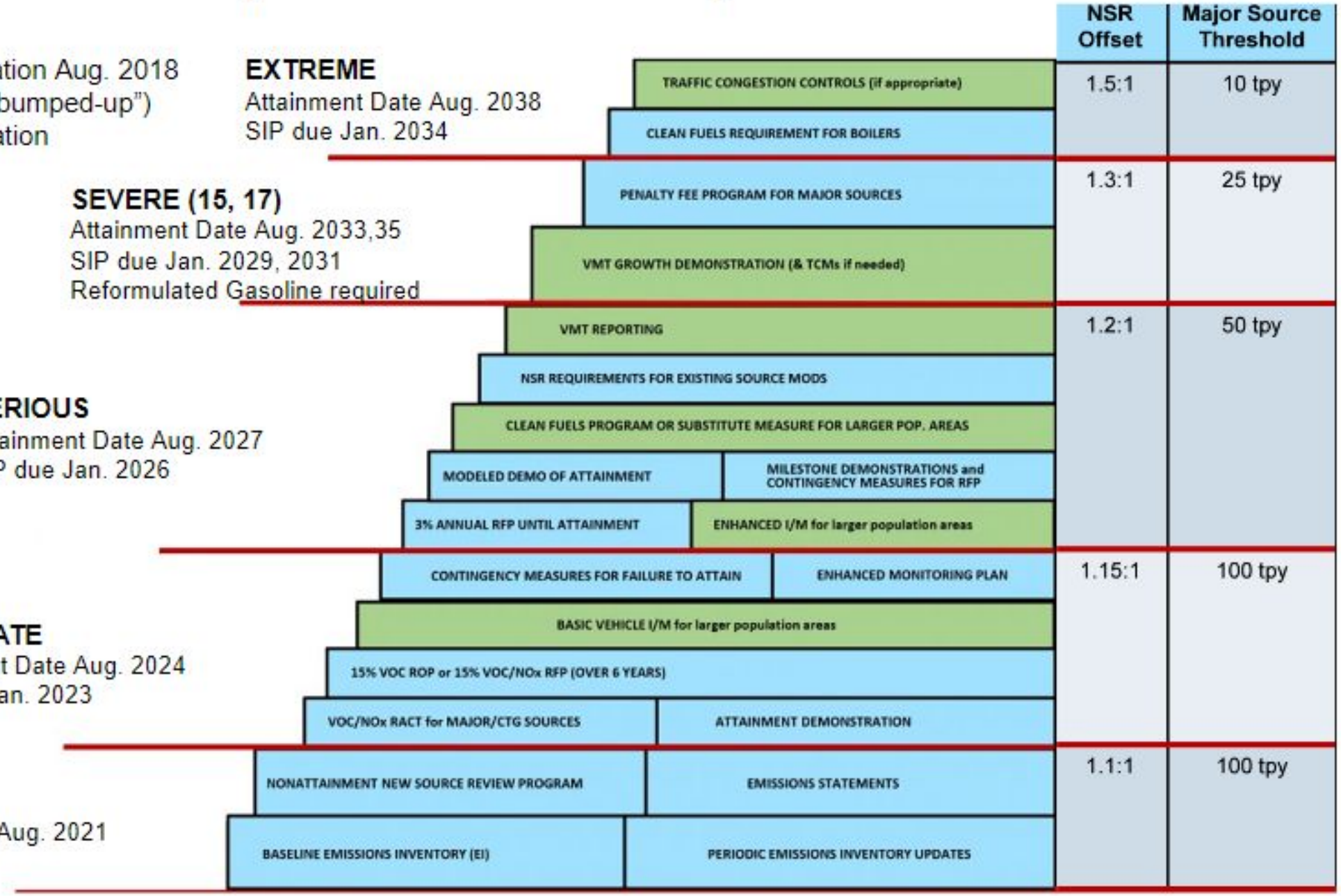
Potential freeze to federal highway funds

Federal plan could be far more strict (FIP)

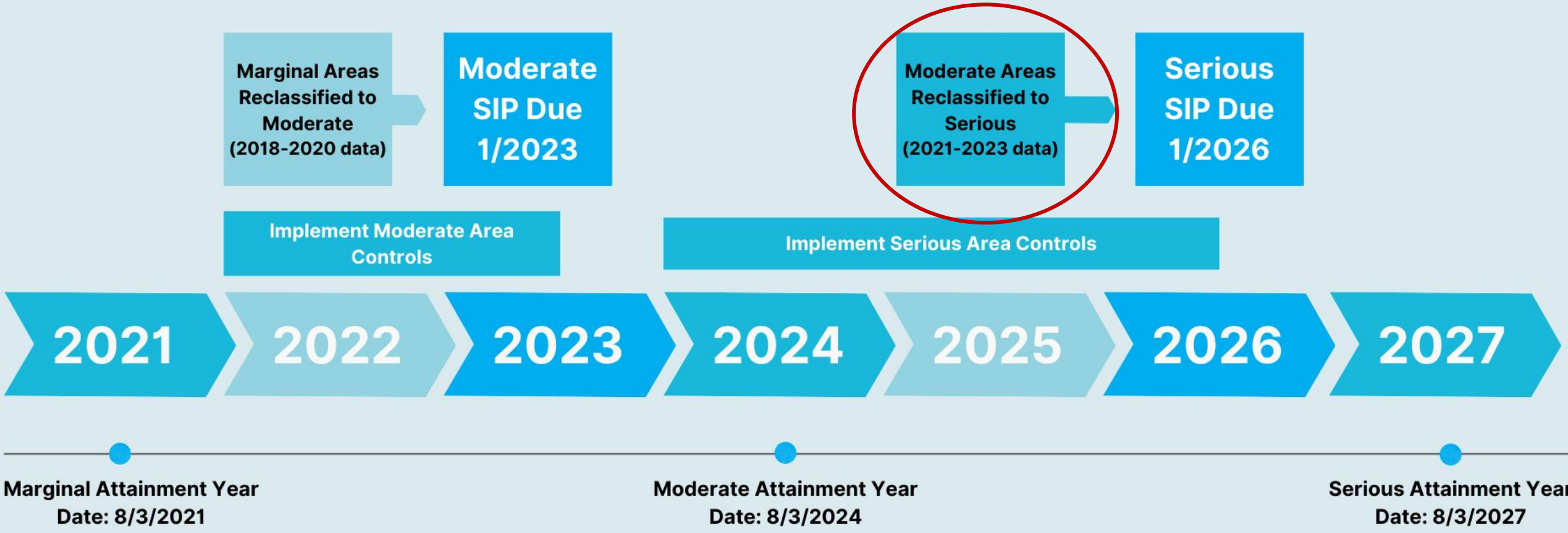
“Bump up” in NAA classification will require even more costly controls

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



Northern Wasatch Front Ozone Planning Timeline



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

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
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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

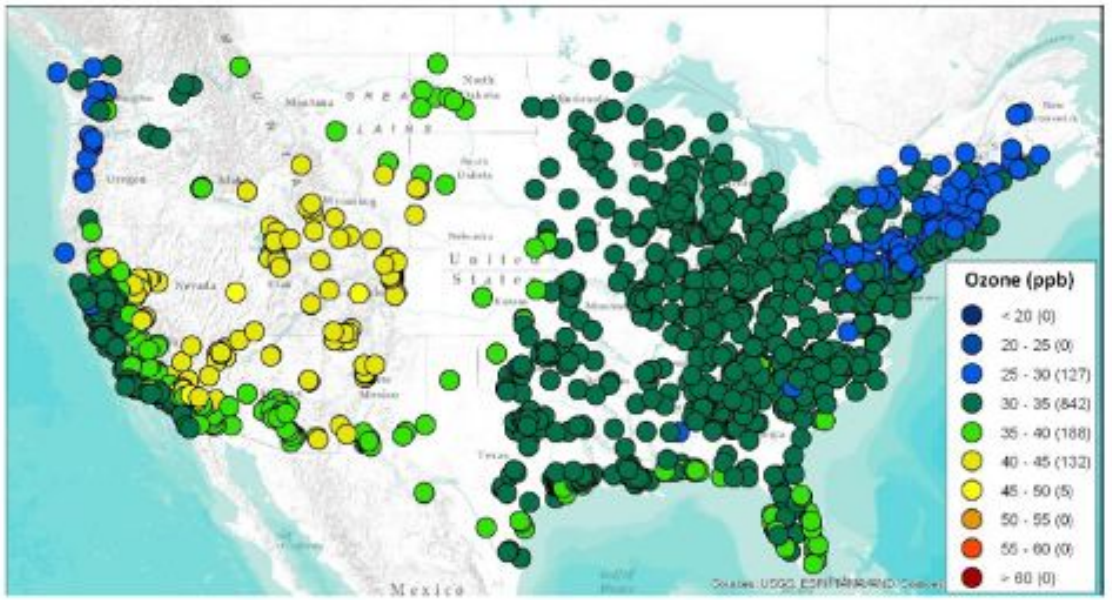
Utah faces a range of challenges when working to reduce ozone:

- 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

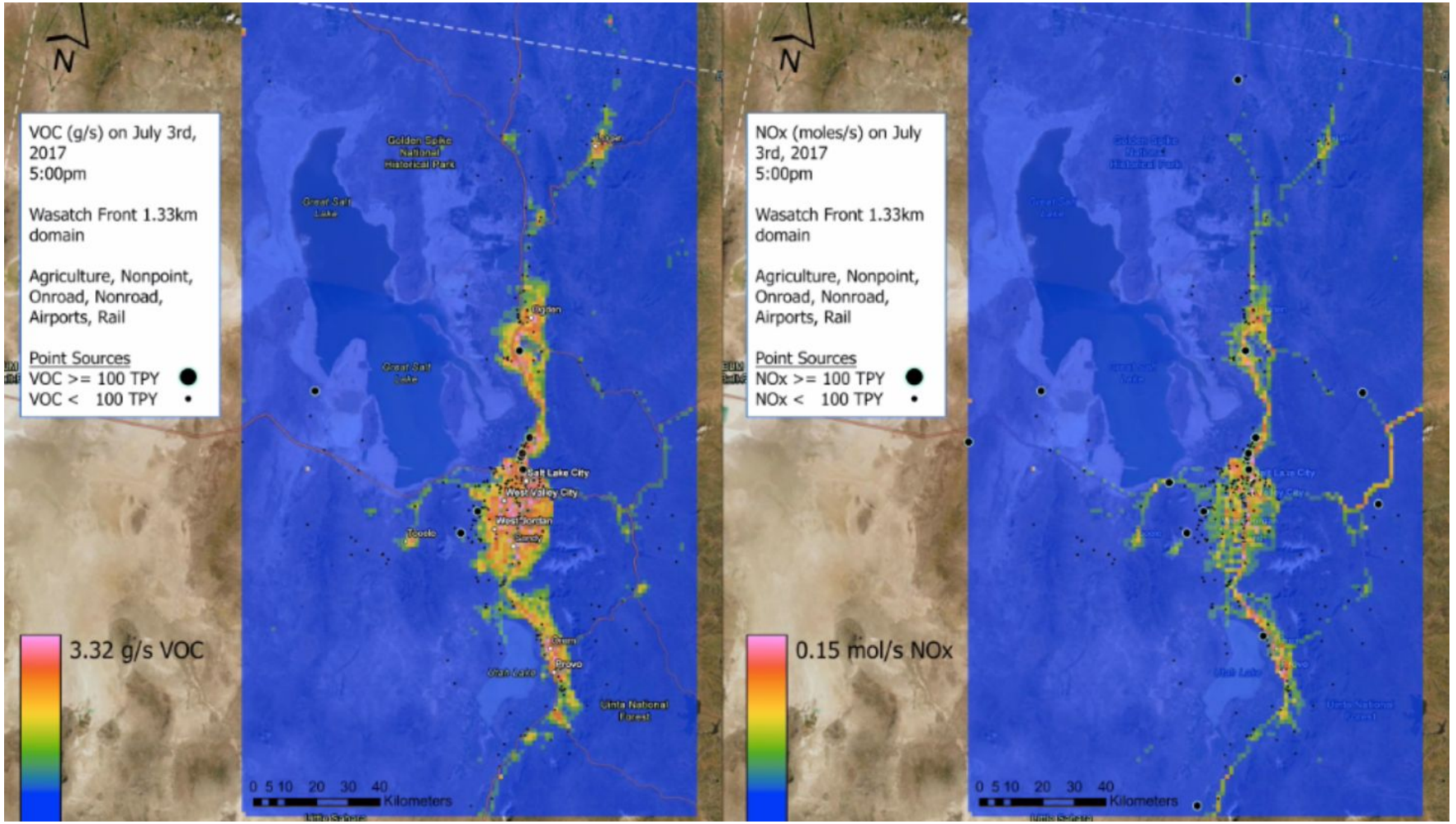


CMAQ estimates of average background (USB) ozone at monitoring locations across the U.S. in 2007

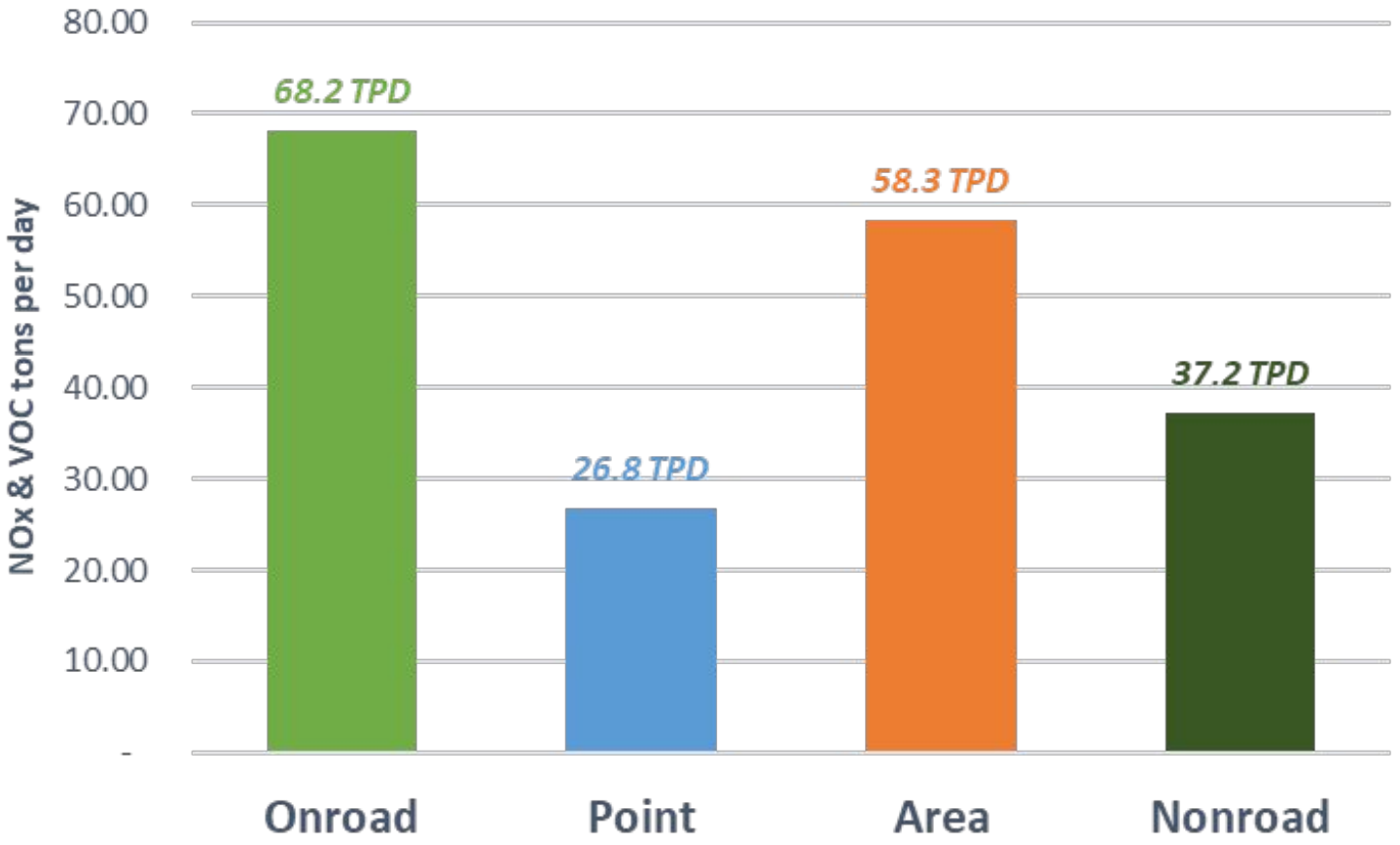
EPA modeled background ozone concentrations in the continental United States. This demonstrates the effect of elevation and transport on background ozone concentrations in the west.

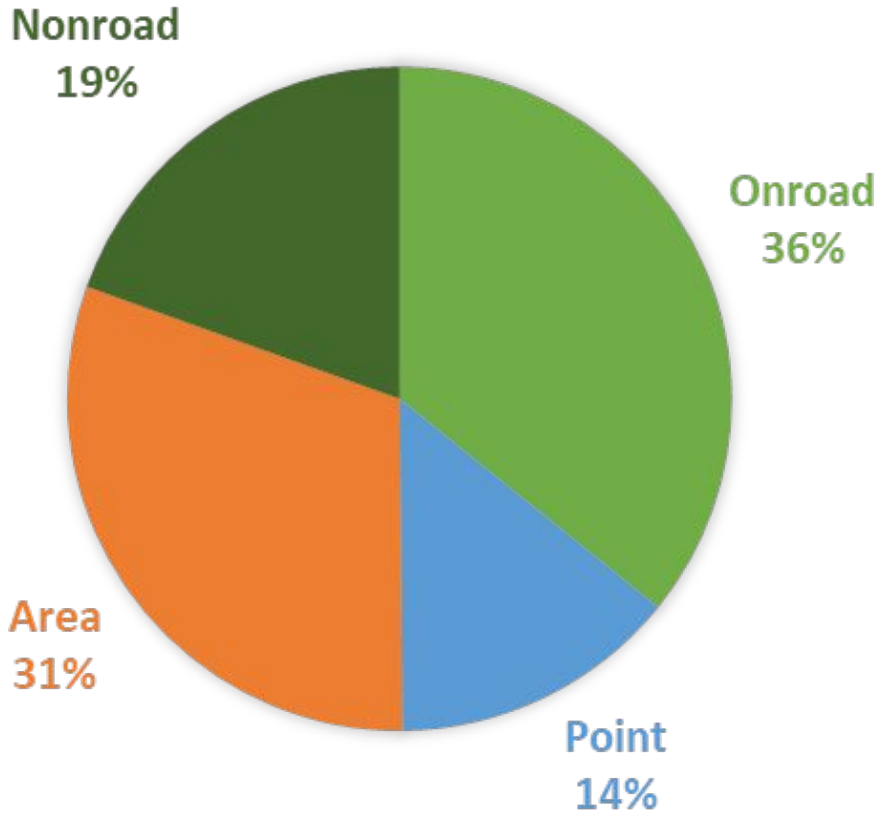
"background ozone can exceed 60 ppb in the intermountain west"

Wasatch Front Urban Precursor Emissions



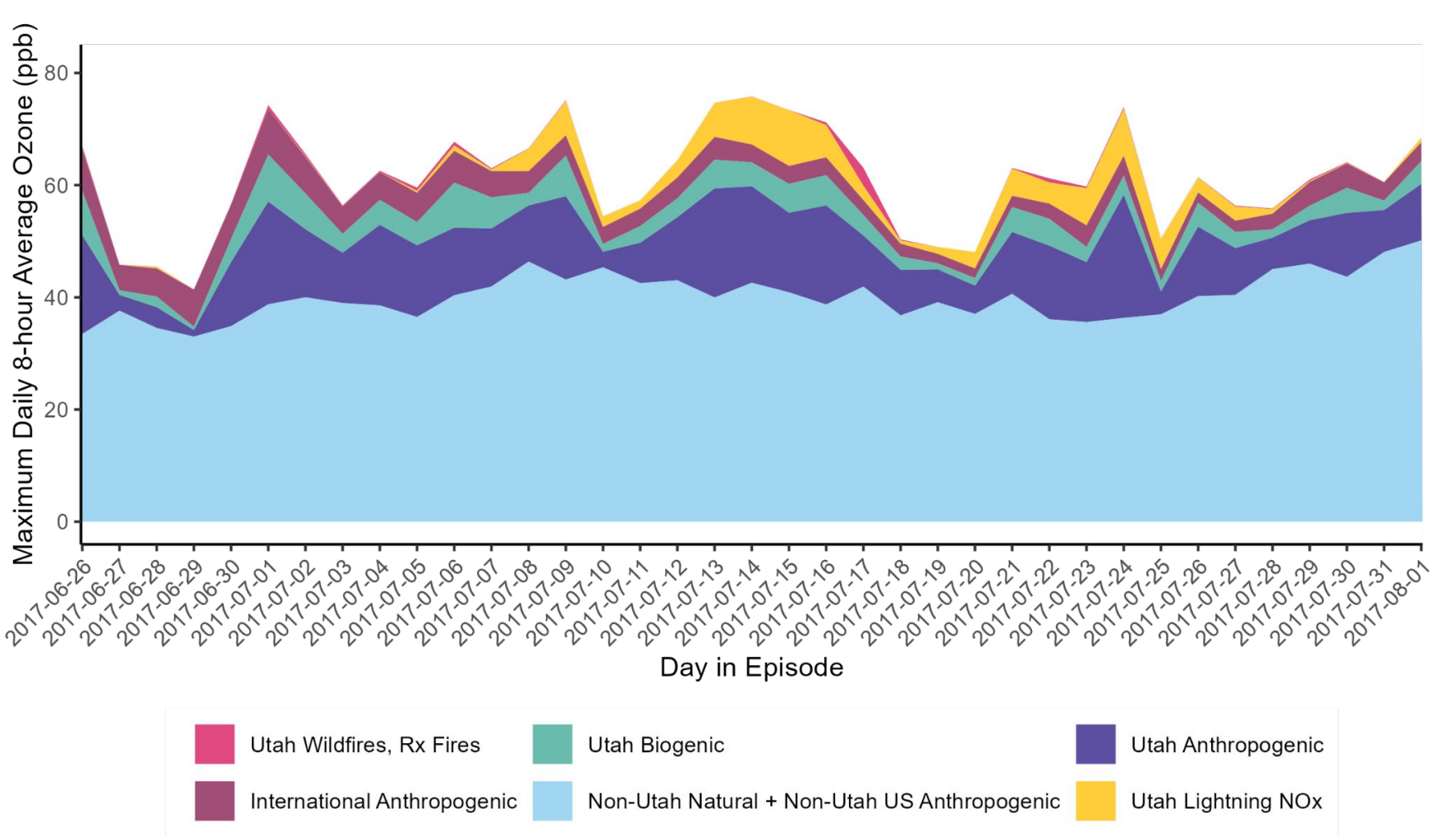
Man-Made NOx and VOC Emissions in the Northern Wasatch Front on an average "ozone season" day

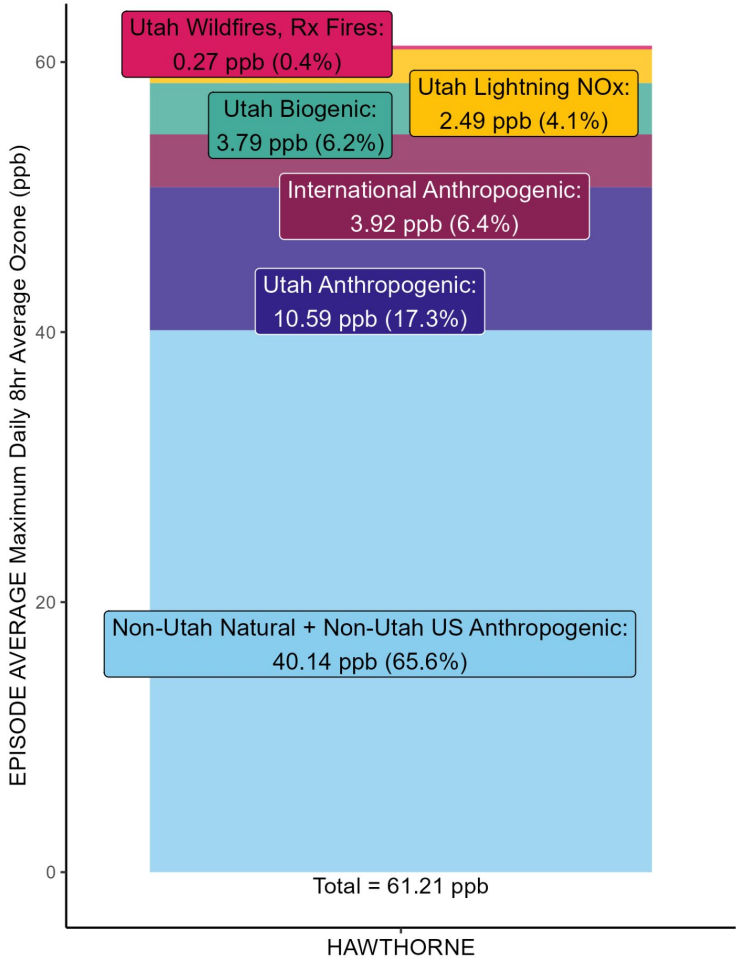




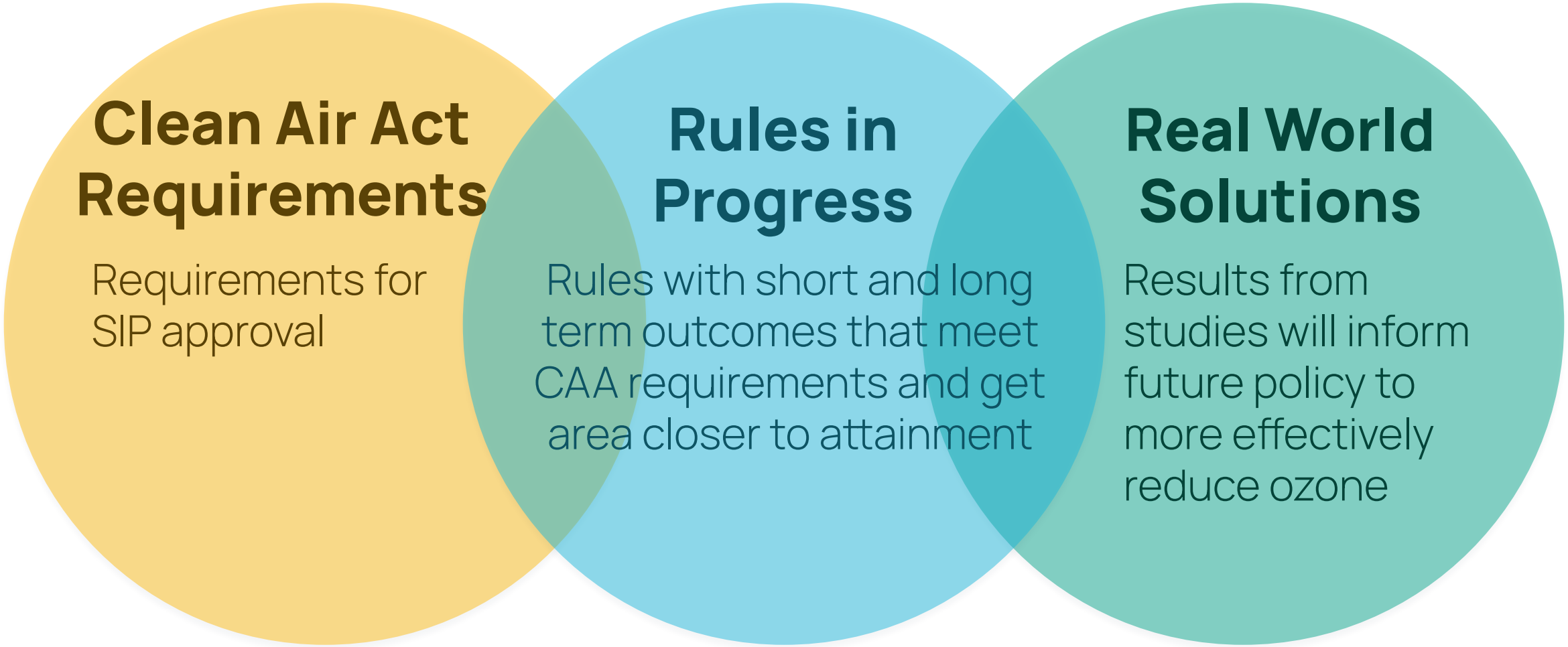
More than half of anthropogenic emissions driving local ozone formation are very difficult to regulate at the state level

Ozone Source Contributions





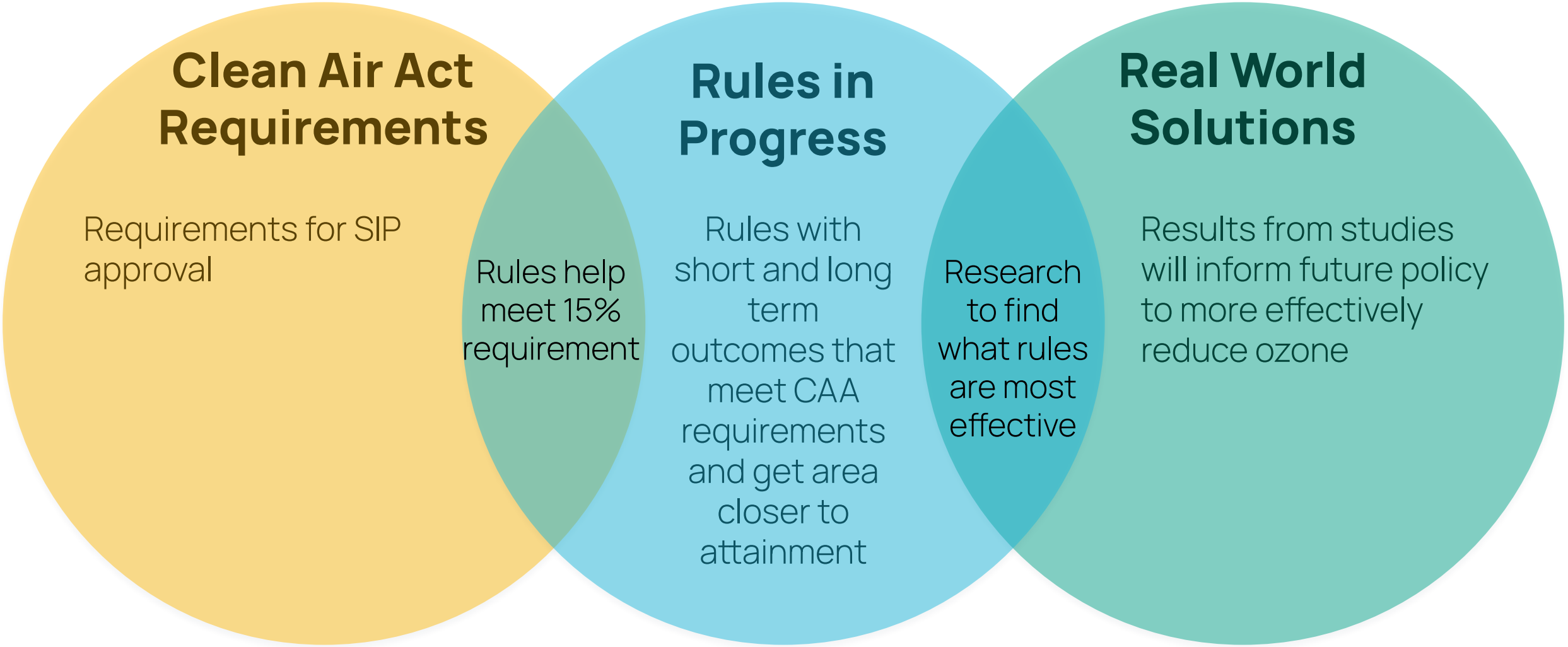
Ozone Attainment Plan



Clean Air Act 179B

Prevent serious nonattainment and allow time for real world solutions

Ozone Attainment Plan



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

Real World Solutions

Utah Summer Ozone Study (USOS)

July 2024

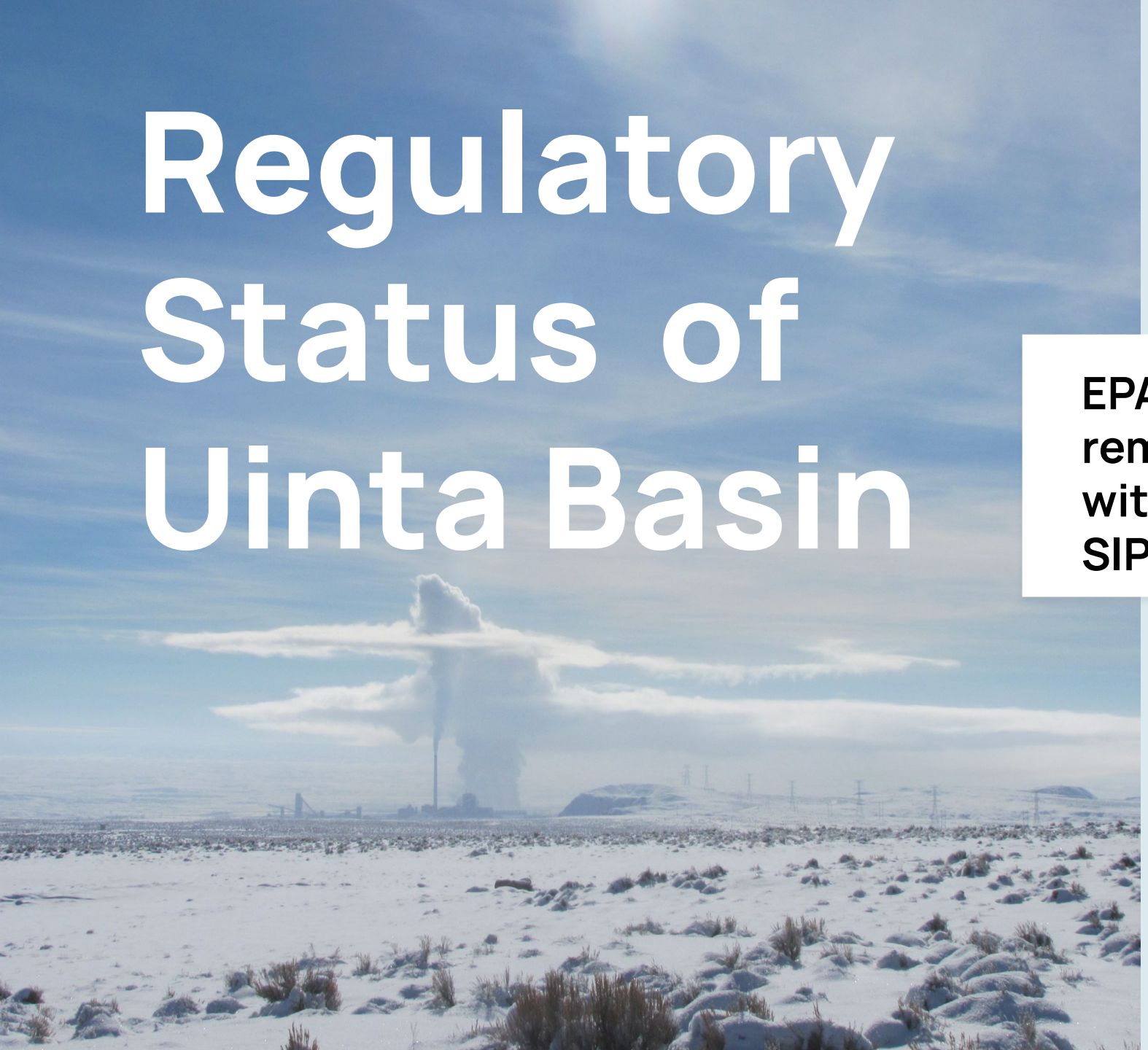
Photochemical Assessment Monitoring

Updated Photochemical Modeling

NOAA DHC-6-300 twin otter plane

Photo from UWFPS NOAA study

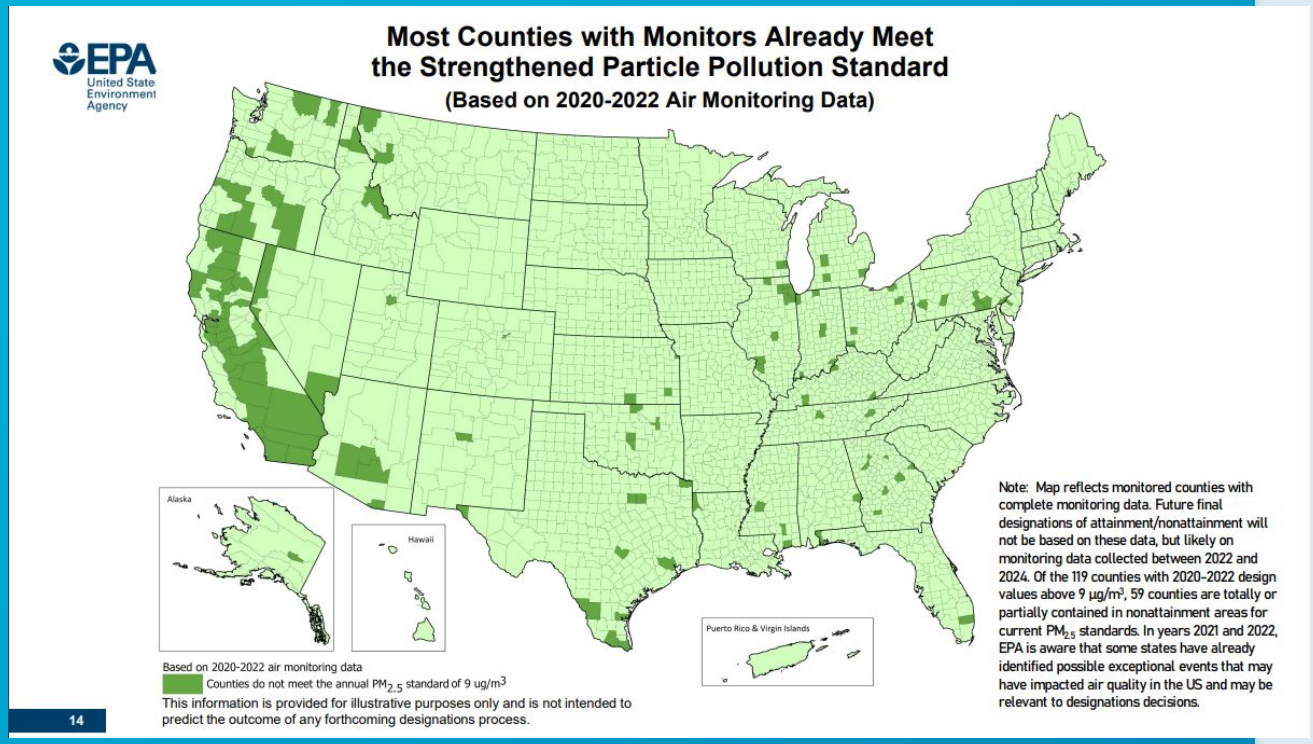
Winter 2017



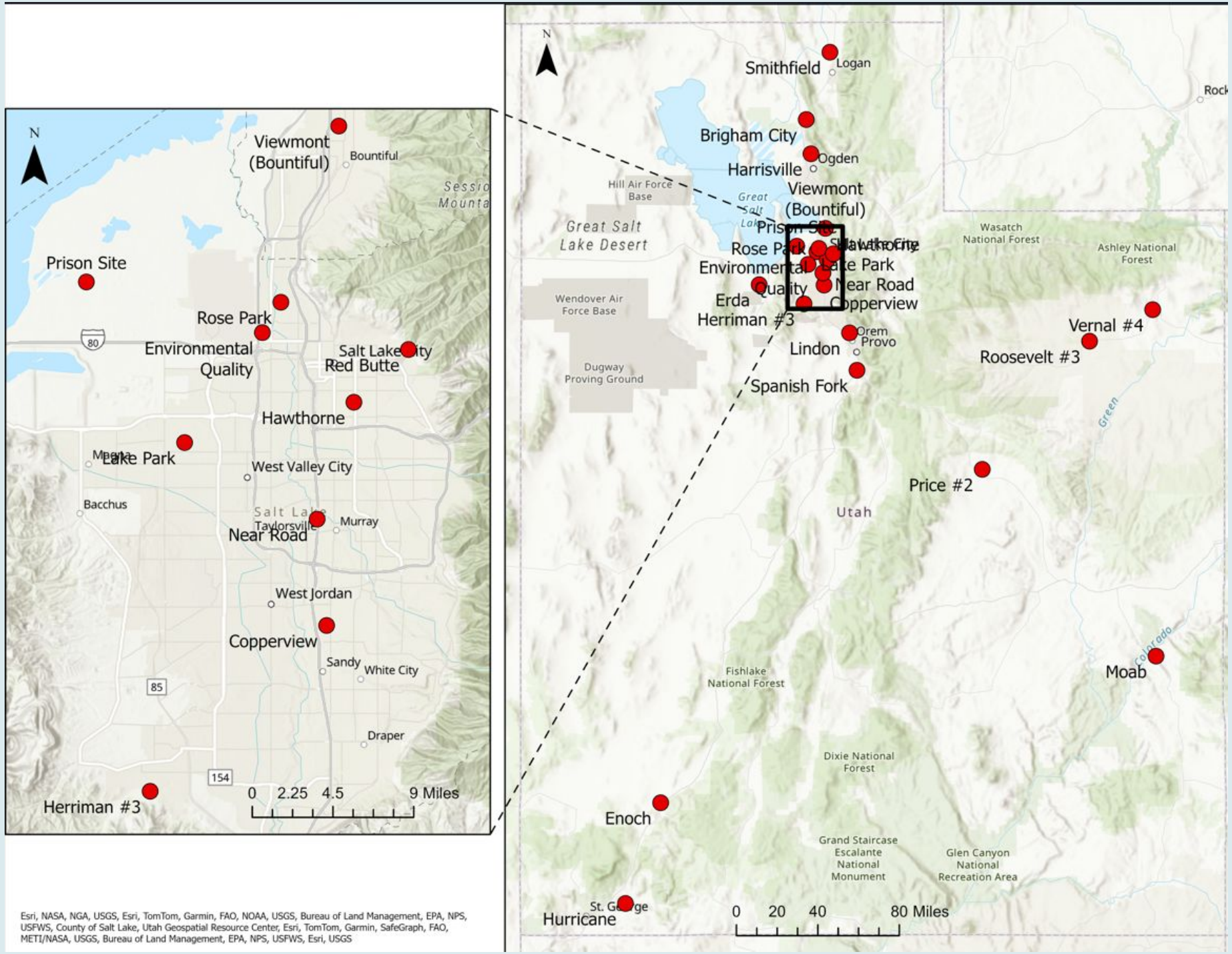
Regulatory Status of Uinta Basin

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

2024 $PM_{2.5}$ NAAQS



- Retained all PM_{10} standards
- Retained 24-hr $PM_{2.5}$ std at 35ug/m^3
- Decreased annual $PM_{2.5}$ std from 12ug/m^3 to 9ug/m^3
- 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/m^3

Will work on excluding in designation recommendation

Oil and Natural Gas Operations Methane Rules

- OOOOb - new facilities as of Dec. 2022
- OOOOc - existing facilities

OOOOb & OOOOc

- 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

2024/2025 **May 2026** **May 2029**

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

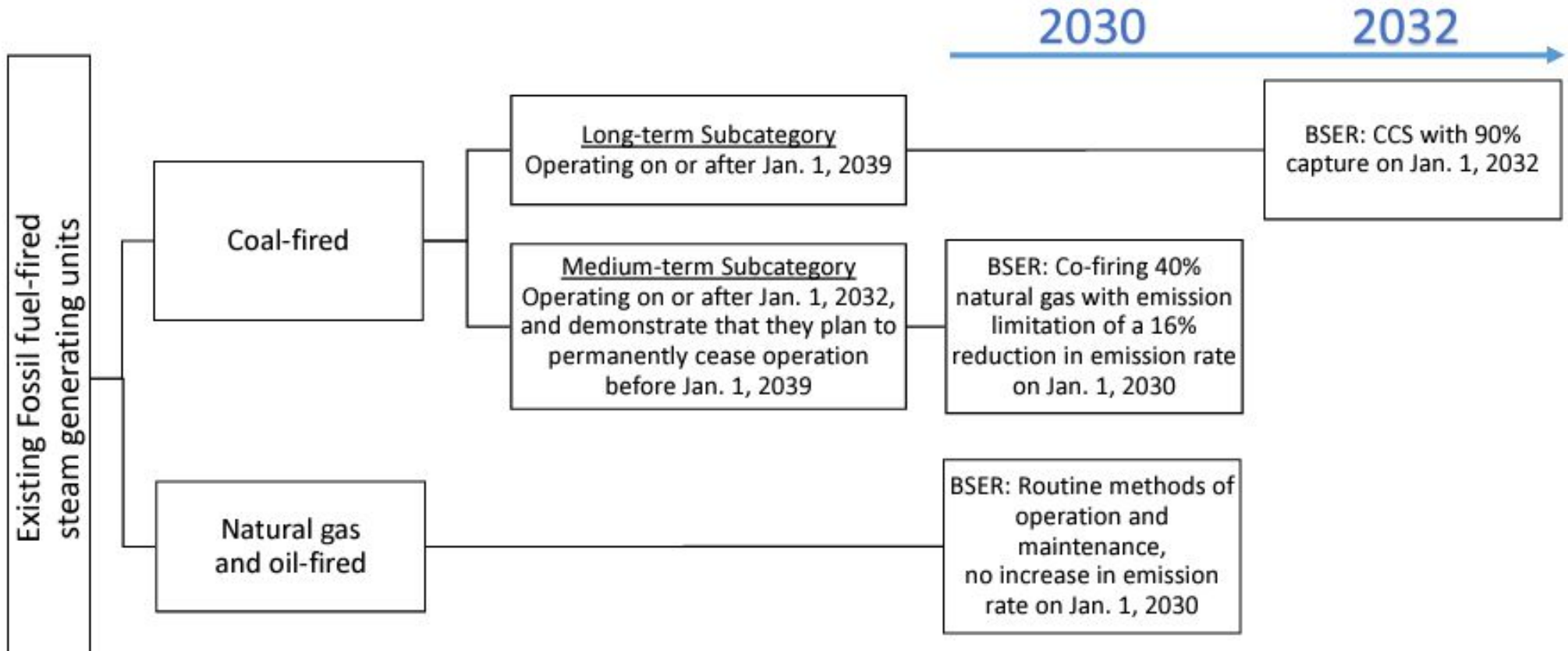
2024/2026

July 2026

January 1, 2030, or January 1, 2032

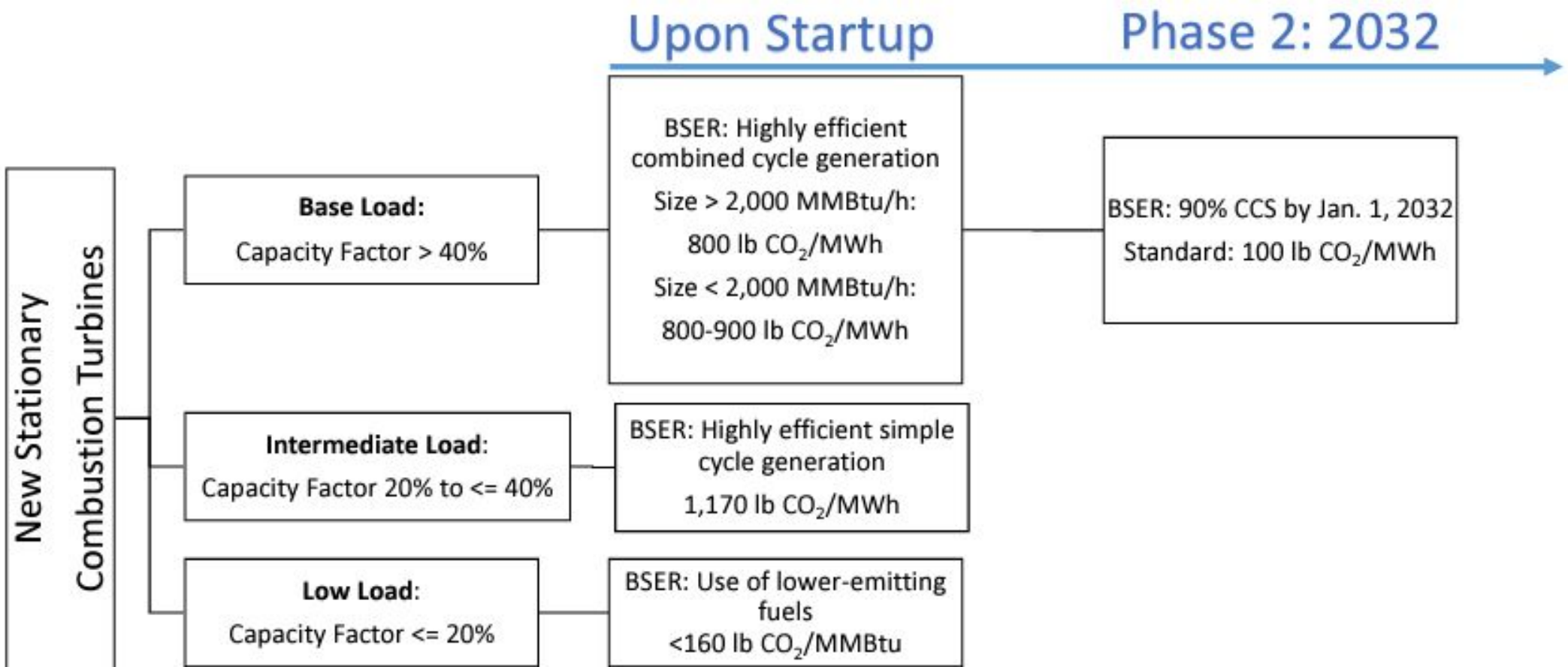
Emissions Guidelines for Steam EGUs

- 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



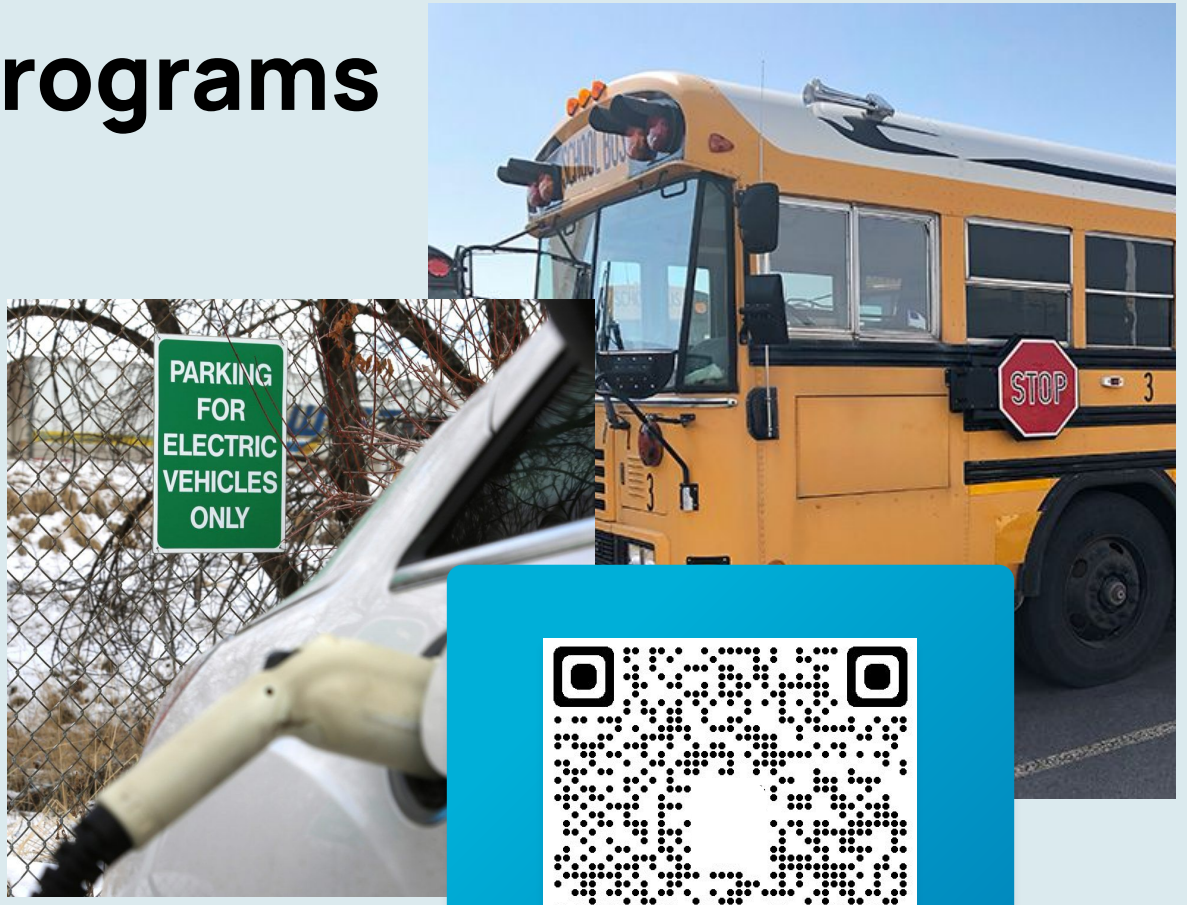
Final Standards for New Stationary Combustion Turbines

- 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



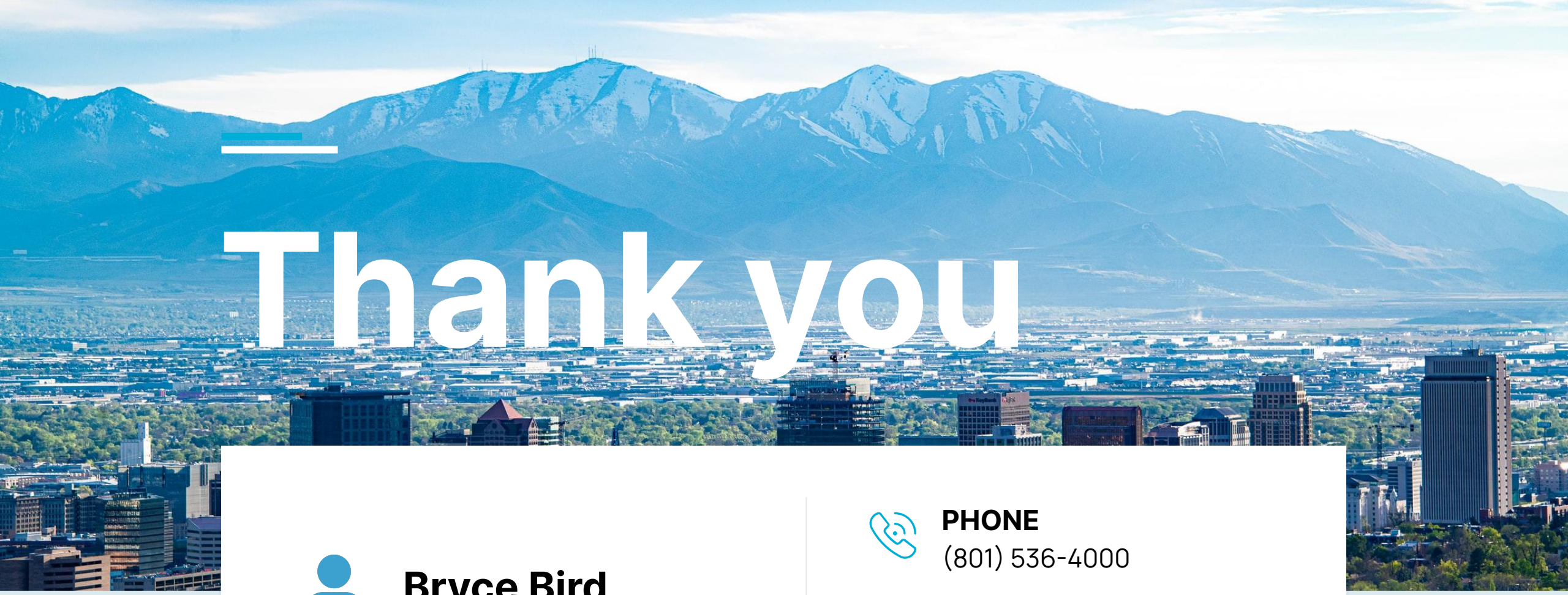
Air Quality Incentive Programs

- 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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