



Environmental Rules Update

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NPPD Board of Directors Meeting
April 2024

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Environmental Manager



Nebraska Public Power District

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EPA Rules Review and Update

- **Greenhouse Gas Rules**
- **Regional Haze Update**
- **PM2.5 (National Ambient Air Quality Standard)**
- **Mercury and Air Toxics Standards (MATS)**
- **Effluent Limitation Guidelines (ELG)**

EPA Greenhouse Gas Rules

History

- Clean Power Plan
- Affordable Clean Energy (ACE)
- Greenhouse Gas Rule

Status

- Currently at the White House Office of Management and Budget (OMB)
- Anticipate Final Rule in May

EPA Greenhouse Gas Rules

Coal Plants Impacts

- Install carbon capture by 2030
- Options of natural gas blending with closure dates
- Option to convert to 100% natural gas

Natural Gas Combustion Turbines (existing)

- EPA plans to address in a future rulemaking

Natural Gas Combustion Turbines (new)

- Base load (>45% capacity factor) – options carbon capture or hydrogen
- Intermediate load (<45% capacity factor) – options hydrogen
- Low load (20% capacity factor limit) – emission limit

EPA Greenhouse Gas Rules

EPA Greenhouse Gas Rule - Proposed BSER and Performance Standards					
	Through Dec. 31, 2029	Jan. 1, 2030 - Dec. 31, 2031	Jan. 1, 2032 - Dec. 31, 2034	Jan. 1, 2035 - Jan. 1, 2039	2040 and beyond
111(d) - Existing Steam EGU's (coal fired)*					
Retire by 12/31/2031	NA Standard	Routine operations/ no emissions increases ***	Unit Retired		
Retire 2032-2034	NA Standard	20% annual capacity factor (CF) restriction***		Unit Retired	
Retire 2035-2039	NA Standard	40% natural gas co-firing			Unit Retired
Retire after 1/1/2040	NA Standard	CCS at 90% capture rate***			
111(d) - Existing Steam EGU's (gas fired)*					
≥50% Capacity Factor	NA Standard	Routine efficient operations: 1,300 lb CO ₂ /MWh			
<50% Capacity Factor ²	NA Standard	Routine efficient operations: 1,500 lb CO ₂ /MWh			
111(d) - Existing NGCC**					
CCS option	1000 lb CO ₂ /MWh or current permit standard		CCS at 90% capture rate		
Hydrogen (H ₂) option			30% H blending by volume (from 1/1/2032 until 1/1/2038)***	96% H blending by volume (after 1/1/2038)***	
111(b) - New NGCC**					
Base load > 45-55%*** (CCS Option)	Highly efficient generation/best O&M practices 770 lb CO ₂ /MWh for > 2,000 MMBtu/h units 770-900 lb CO ₂ /MWh for < 2,000 MMBtu/h units		CCS at 90% capture rate 90 lb CO ₂ /MWh		
Base load > 45-55%*** (H ₂ Option)	Highly efficient generation/best O&M practices 770 lb CO ₂ /MWh for > 2,000 MMBtu/h units 770-900 lb CO ₂ /MWh for < 2,000 MMBtu/h units		30% H blending by volume 680 lb CO ₂ /MWh (unit1 1/1/2038)	96% H blending by volume 90 lb CO ₂ /MWh (after 1/1/2038)	
111(b) - New CT^{*2}					
Intermediate - NGCC < 45-55% CF CT < 33-40% CF	Efficient Operations 1,150 lb CO ₂ /MWh		30% hydrogen blending by volume 1,000 lb CO ₂ /MWh		
Low Utilitization (CT)***	Use of clean fuels (NG, NO 1 & 2 fuel oil); 20% annual CF restriction; 120-160 lb CO ₂ /MMBTU				

Regional Haze

Background

- Rule spans from 2008 to 2064 and the goal is to reach natural background visibility levels by 2064
- There are six Planning Periods. Currently in the second planning period 2018-2028

Status

- September 6, 2023, Nebraska Department of Environment and Energy (NDEE) public noticed State Implementation Plan (SIP)
- Plan indicated no controls as all impacted parks below glidepath
- EPA and Environmental Groups commented
- Waiting for NDEE to respond to comments and submit final plan

Regional Haze

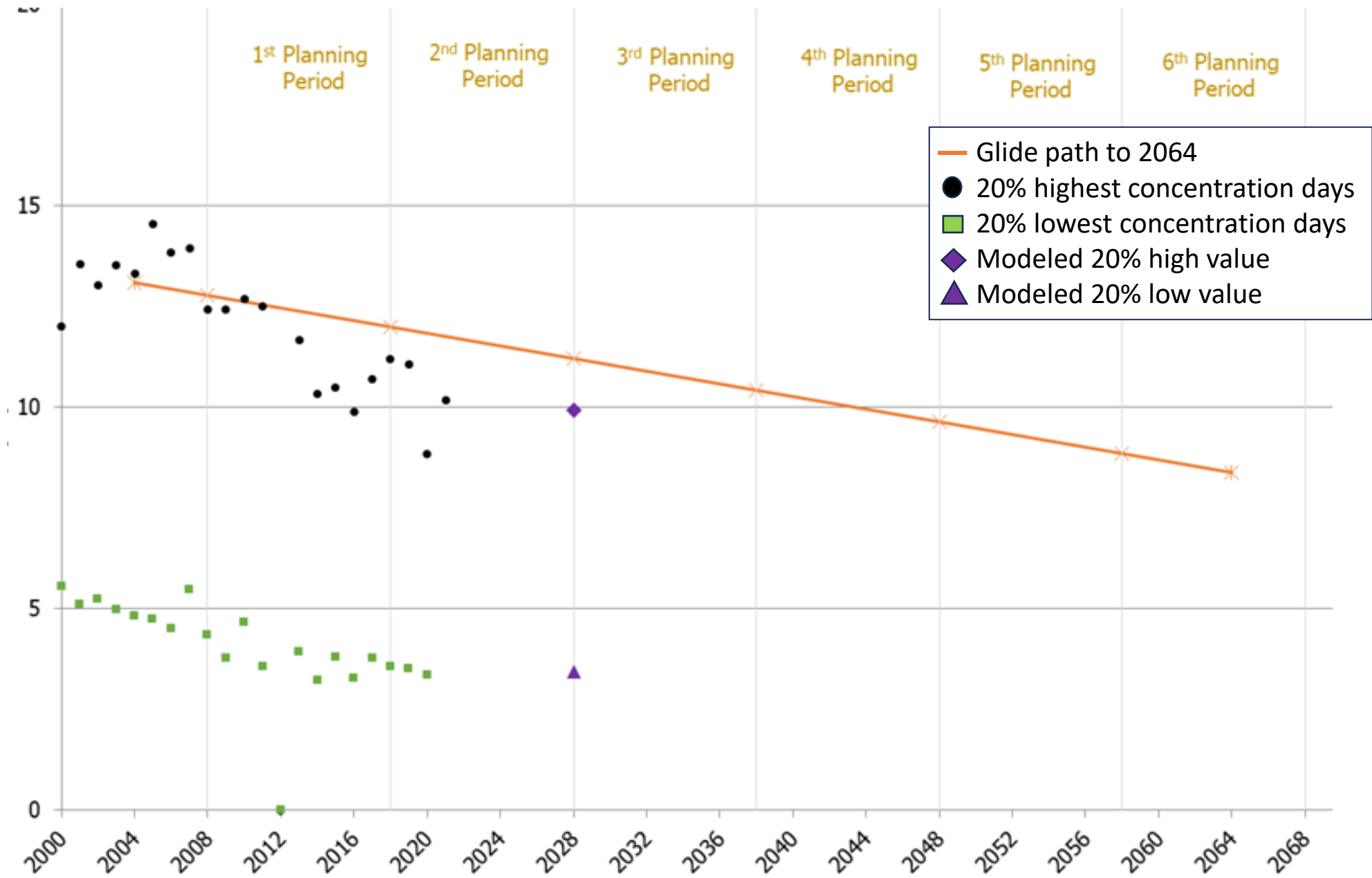
Take-away:

- No National Parks in NE
- Evaluate impacts to parks located in other States

USA NATIONAL PARKS



Wind Cave National Park is making reasonable progress



National Ambient Air Quality Standard (NAAQS) – PM_{2.5}

Status of Rule

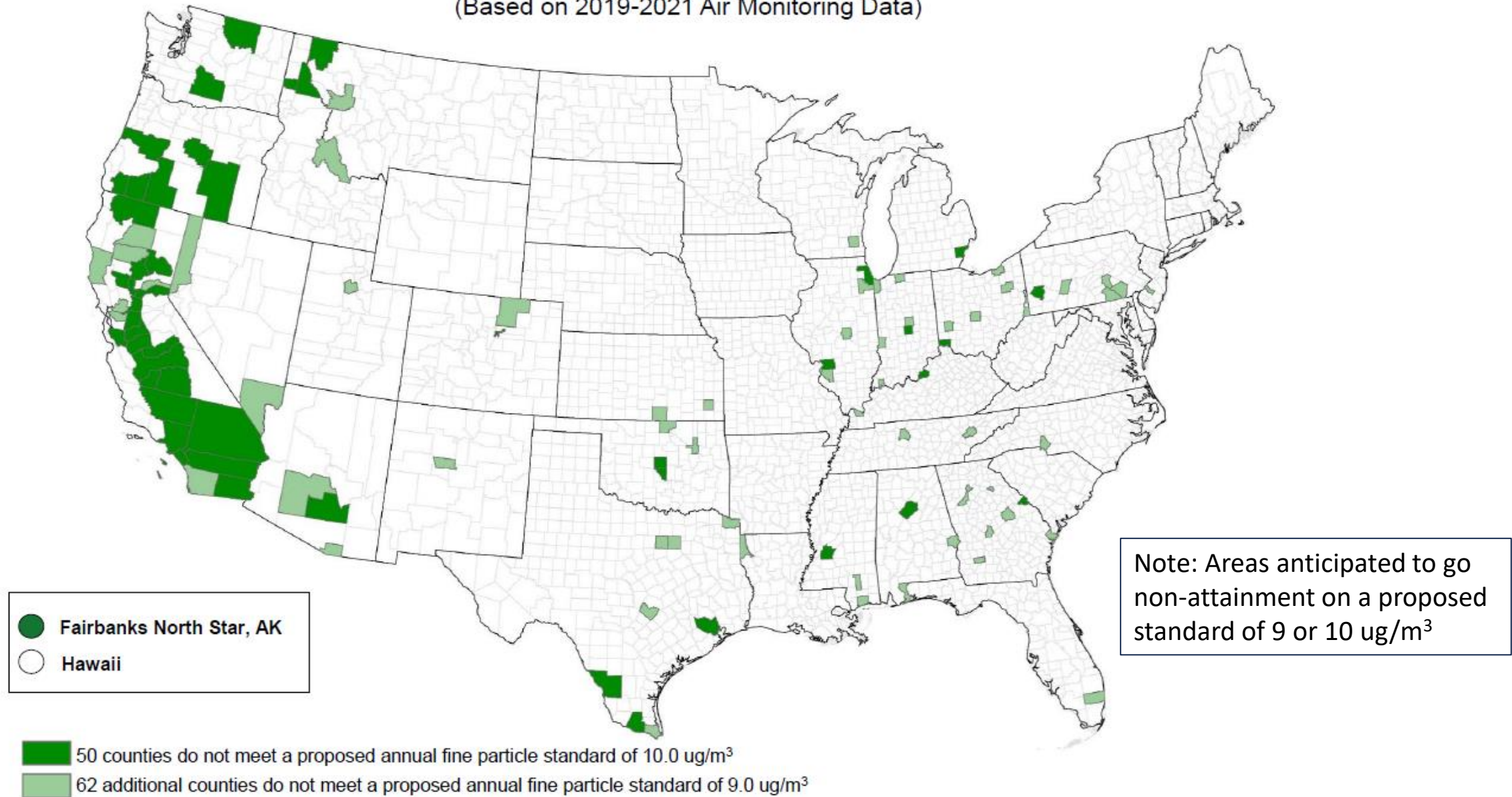
- February 7, 2024 – EPA published final rule
- Lowered standard to 9 ug/m³ from 12 ug/m³

Impacts

- More non-attainment areas across the country
- All areas in Nebraska are anticipated to be in attainment with the new standards
- Permitting new sources becomes more difficult

Current Air Monitoring Data Show Some Counties Would Not Meet Proposed Primary Fine Particle Standards

(Based on 2019-2021 Air Monitoring Data)



NAAQS – PM2.5 – Permit Modeling

$$\begin{aligned} & 5.8 \text{ ug/m}^3 \text{ (background)} \\ & \underline{+2.8 \text{ ug/m}^3 \text{ (source contribution)}} \\ & = 8.6 \text{ ug/m}^3 \text{ (total impact)} \end{aligned}$$

New limit 9.0

Old limit 12.0

Mercury and Air Toxics Standards (MATS)

Status of Rule

- February 15, 2024 - EPA final rule sent to White House Office of Management and Budget (OMB) for review
- Final rule expected to be issued in the second quarter this year

Impacts

- Lower particulate matter limit - compliance risk increases
- Install continuous emission monitors - compliance risk increases

Effluent Limitations Guidelines (ELG)

Status of Rule

- Amendment to existing rule that allowed 10% discharge
- March 5, 2024 – EPA submitted final rules to White House OMB for review
- Final Rule expected to be issued in the second quarter this year

Impact

- Sheldon Station – Zero discharge requirement for bottom ash transport water
- Currently evaluating going from 10% to zero discharge



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Questions

Stay connected with us.



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