



Regional Haze Program

2nd Planning and Implementation Period
Introduction, Overview, and Four Factor Analysis

Air Quality Planning

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Regional Haze – Policy Context



Regional Haze in Oregon

**Regional
Haze
Definitions**

1st Regional
Haze Rule
(1999)

1st 10-year
Regional
Haze Plan
(2009)

Regional
Haze
Progress
Report
(2017)

2nd 10-year
Regional
Haze Plan
(2021)

End of
Second 10-
year Plan
Period
(2028)

“Natural
Conditions”
Goal (2064)

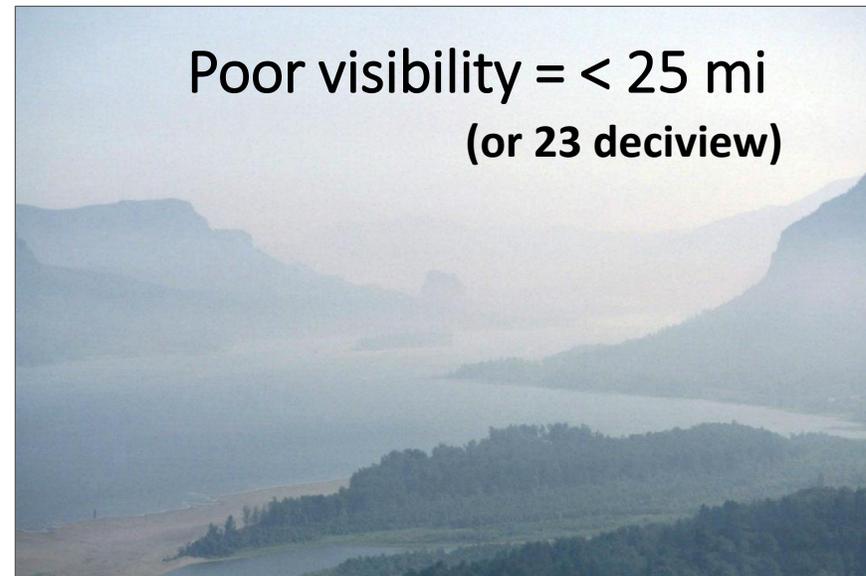
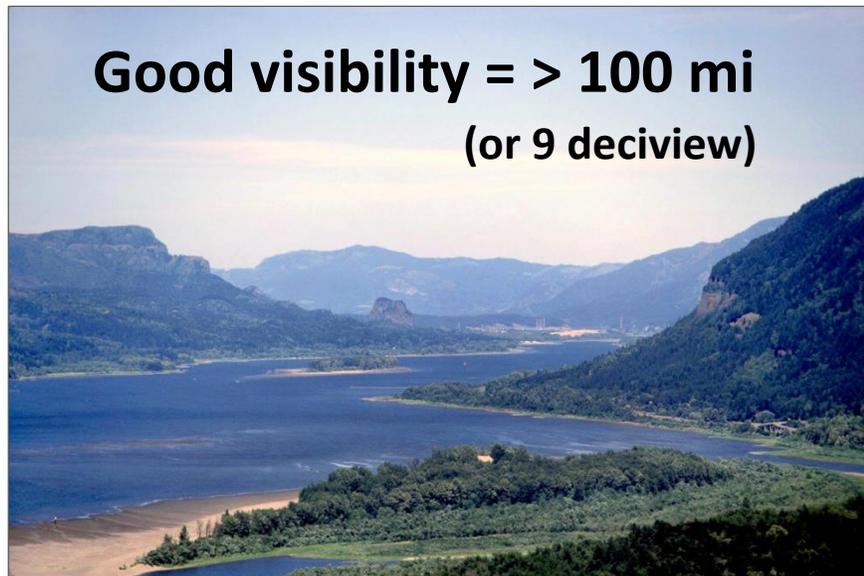
- Visibility & visibility impairment
- Sources of Visibility Impairment
- Definition of Class I Area
- Oregon’s Class I Areas and the Columbia River Gorge NSA

Haze and Visibility

- Air pollution that is transported long distances and reduces visibility in cities and scenic areas.
- Haze is caused when sunlight encounters tiny pollution particles in the air that scatters light and decreases visibility.
- **Small amounts of air pollution** (well below health standards) can have significant effect on visibility.

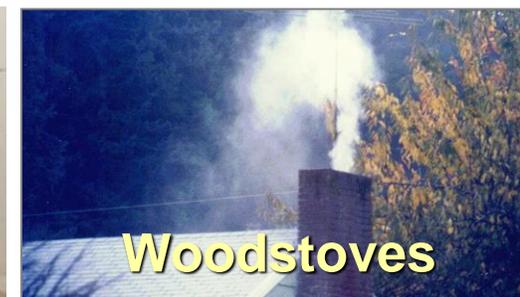
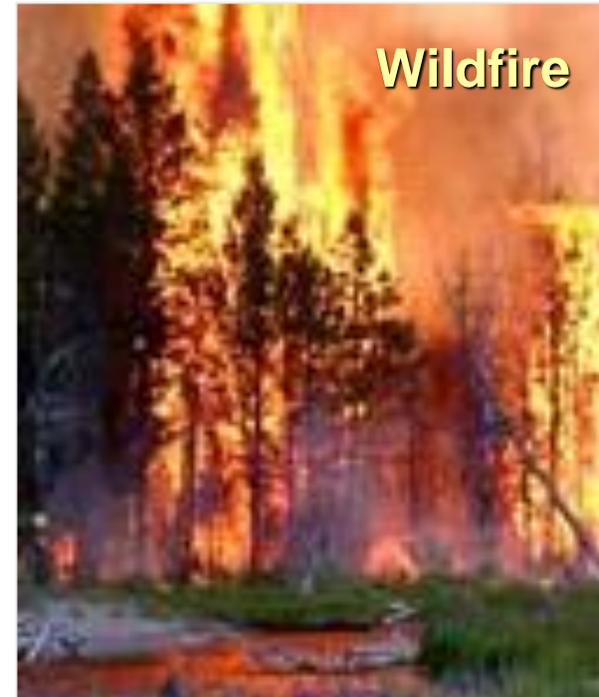
Visibility

- Visibility is “how far” and “how well” you can see a distant object.
- Scientifically: *light scattering + light absorption = light extinction.*



Looking East from Vista House

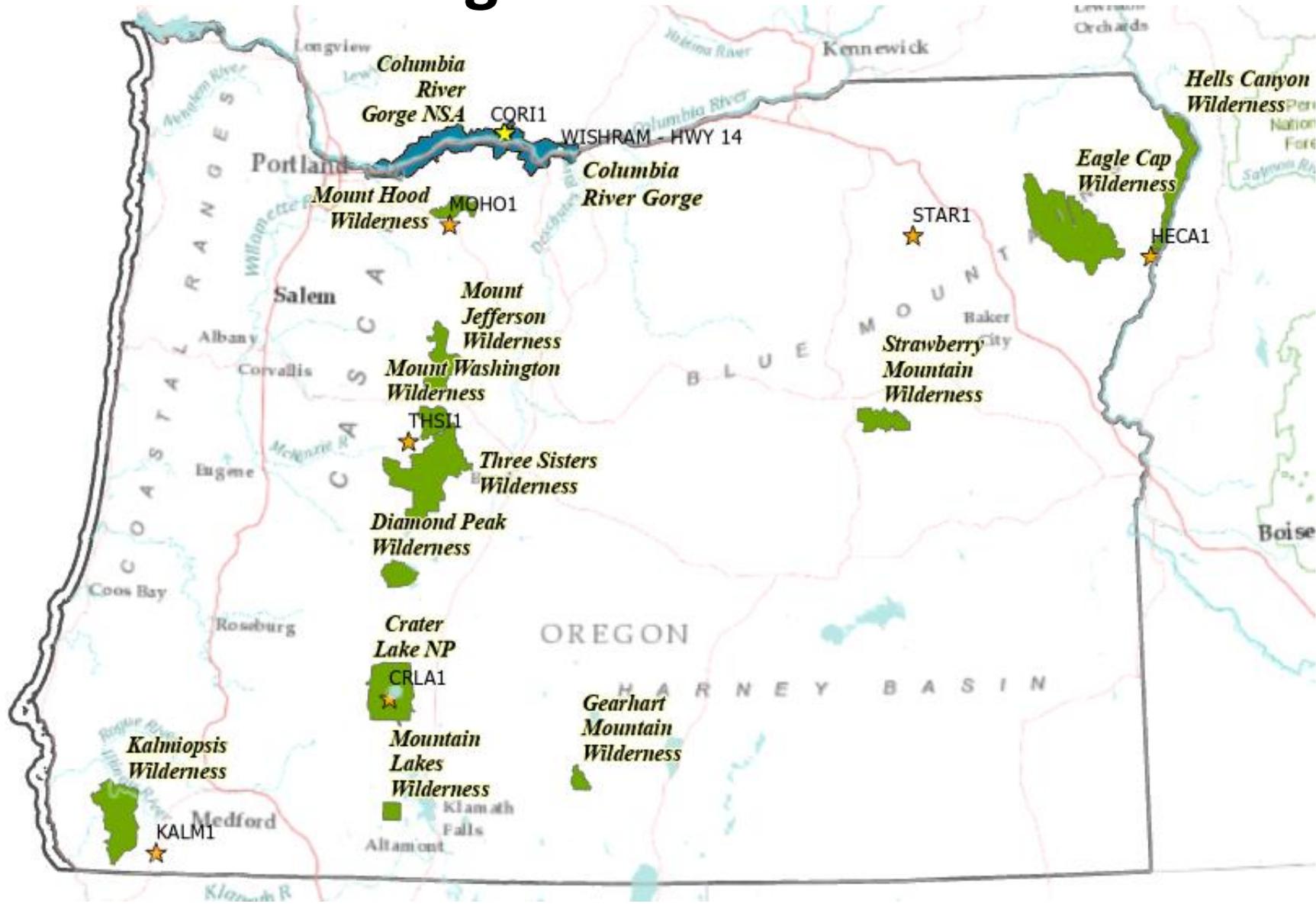
Sources of Visibility Impairment



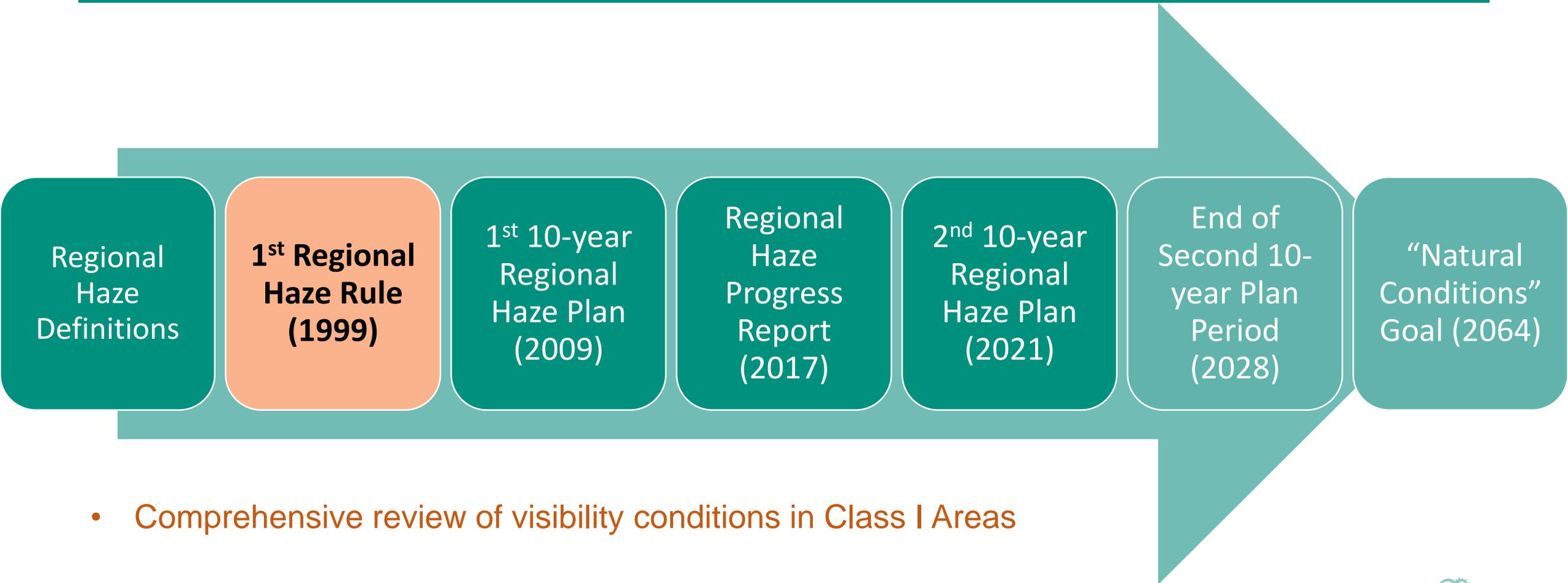
What is a Class I Area?



Oregon Class I Areas



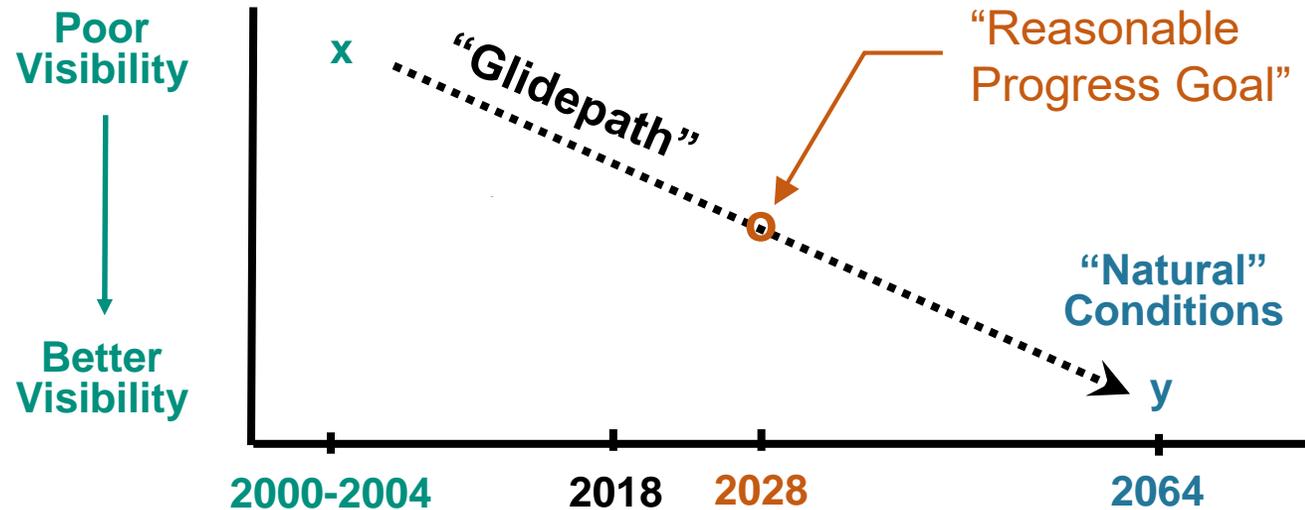
Regional Haze in Oregon



- Comprehensive review of visibility conditions in Class I Areas

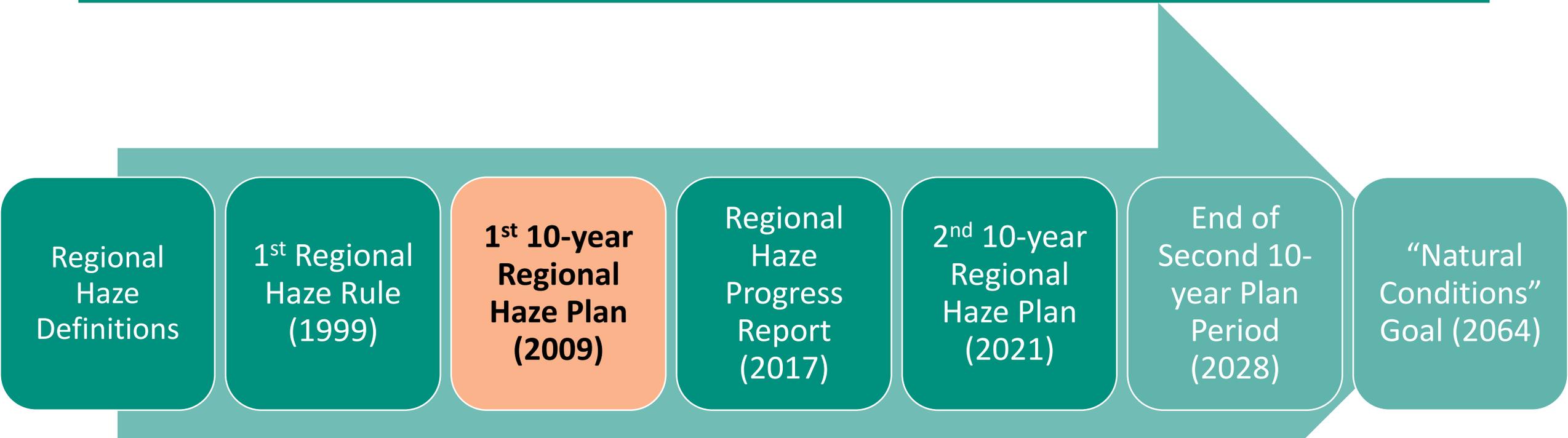
EPA's Regional Haze Rule (1999)

- Requires improvement of the 20% WORST days and no degradation of the 20% BEST days to 2064.



- States must adopt comprehensive strategies.
- Must show "reasonable progress" in improving visibility goal (by 2018 first planning period, by 2028 for the second).

Regional Haze in Oregon



- Comprehensive review of visibility conditions in Oregon Class I Areas
- Evaluation of 5 BART-eligible sources;
 - retrofit controls at PGE Boardman; FEPLs at 4 other sources
- Smoke management plan; Willamette Valley field burning rule

Regional Haze in Oregon



- Evaluated 2010-2014 progress towards 2018 visibility goals
- Continued to see emissions reductions from BART
- Visibility improved on best and worst days
- Most Class I Areas meeting 2018 RPGs

Regional Haze in Oregon

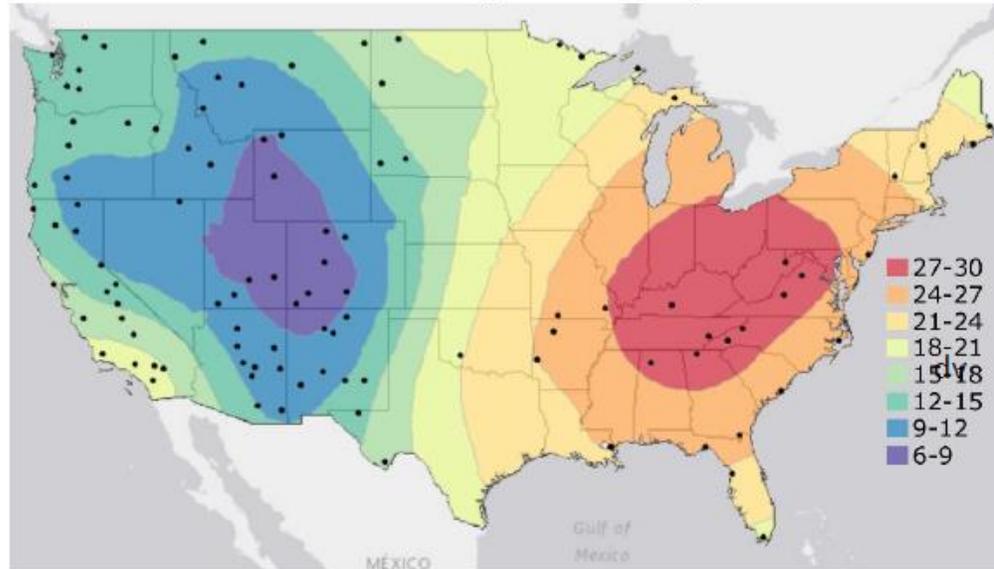


- Regional Haze Rule Update (2017) + Guidance (2019)
- Calculations of visibility conditions in each of Oregon’s Class I Areas: focus on anthropogenic impacts
- Long Term Strategy for regional haze
- Reasonable Progress Goals

First Planning Period: Visibility is Improving

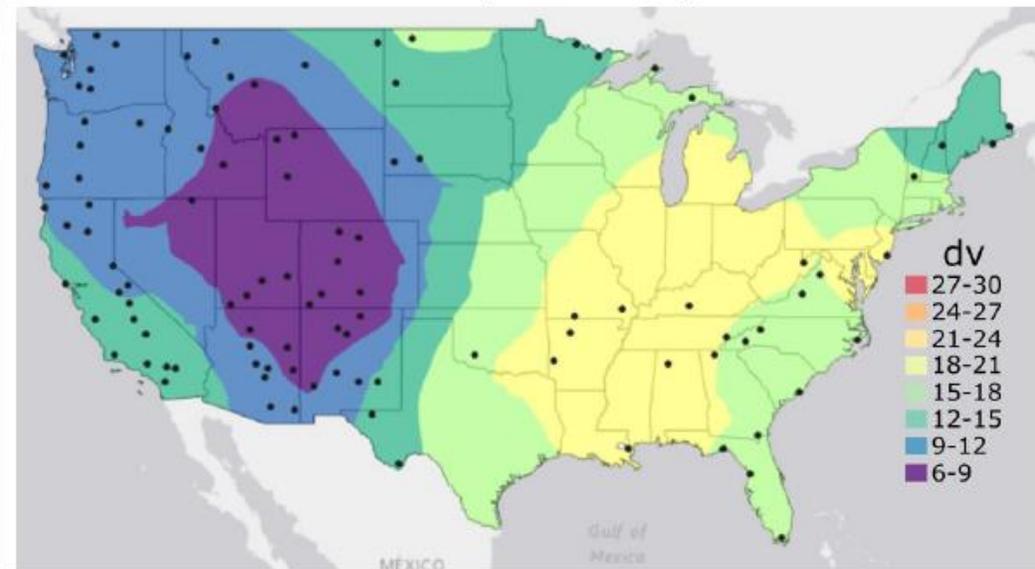
2000-2004

Visibility (dv) on 20% most impaired days



2013-2017

Visibility (dv) on 20% most impaired days



The National Park Service estimates that as of mid-2014, emission controls established under the first planning period led to approximately 500,000 tons/year of SO₂ and 300,000 tons/year of NO_x reductions. EPA estimates that visibility has improved significantly with the average visual range increased by 20 – 30 miles in Class I areas.

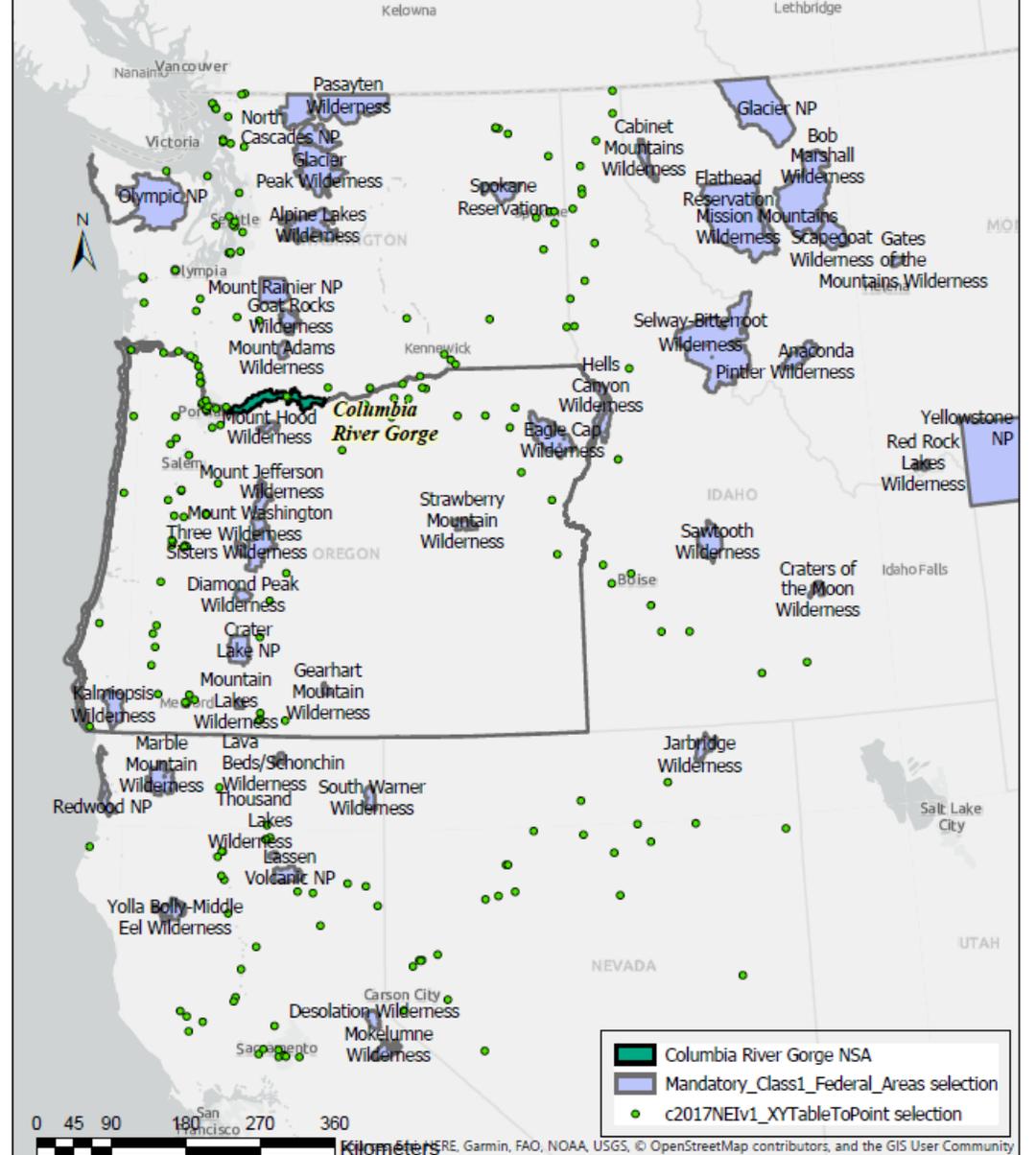
Stationary Source Screening: Q/d

- “Q over d” where:
 - $Q = NO_x + SO_2 + PM_{10}$ (tons per year)
 - d = distance from a source to the boundary of a Class I Area (km)
- Calculated for each facility and each Class I Area if
 - $D < 400$ km
 - $Q > 25$ tpy
- Goal: capture 80% of total Q for major sources
 - $Q/d \geq 5$ captures 80% of the total Q from major sources for all Oregon CIAs

Q/D Source Screening

- 2017NEIv1 (released 9/3/19)
- Mandatory Class 1 Federal Areas (EPA OAQPS)
- Columbia River Gorge NSA

Class I Areas and Title V Facilities within 400 km of Oregon State Boundary



Four Factor Analysis

- The four factor analysis involves assessing potential emission controls technologies against four statutory factors:
 - The cost of control,
 - Time necessary to install controls,
 - Energy and non-air quality impacts, and
 - Remaining useful life.
- Reference: [EPA Guidance on Regional Haze SIPs for the Second Implementation Period \(“Guidance”\)](#), August 2019, EPA-457/B-19-003.

Statutory factor: Cost of control

- [EPA Air Pollution Control Cost Manual \(“Control Cost Manual”\)](#)
- “Overnight method” for accounting for capital investments
- Installation of new control: talk with us
- Cost / tons of emissions reduction
 - Emission reduction: annual tons of reduction from implementation
- Control Strategy Tool (CoST) – for non-EGUs
- Source-specific estimates – adequately documented

Other statutory factors

- Time necessary to install controls
 - Section II.B.5.e of the August 2019 Guidance discusses setting compliance deadlines once time for compliance is determined
- Energy and non-air environmental impacts
 - Cost Control Manual provides advice on estimating energy requirements or savings
 - Focus on direct energy consumption at the source
 - Non air environmental impacts can include generation of waste for disposal and impacts on other environmental media. NEPA may be informative.

Other statutory factors

- Remaining useful life of source
 - EPA recommends considering the useful life of the control system

The Path to July 31, 2021

	2019			2020				2021	
Activity	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Data Analysis & Modeling	Active	Active	Active	Active	Active				
Source contribution analysis			Active	Active	Active				
Consultations			Active	Active	Active	Active	Active		
Rulemaking						Active	Active	Active	Active
EQC			Completed		Completed		Active	Completed	Active
Final SIP Submittal to EPA									Active

Thank you!

