



Overview of the Regional Haze Rule

Implications for Agriculture

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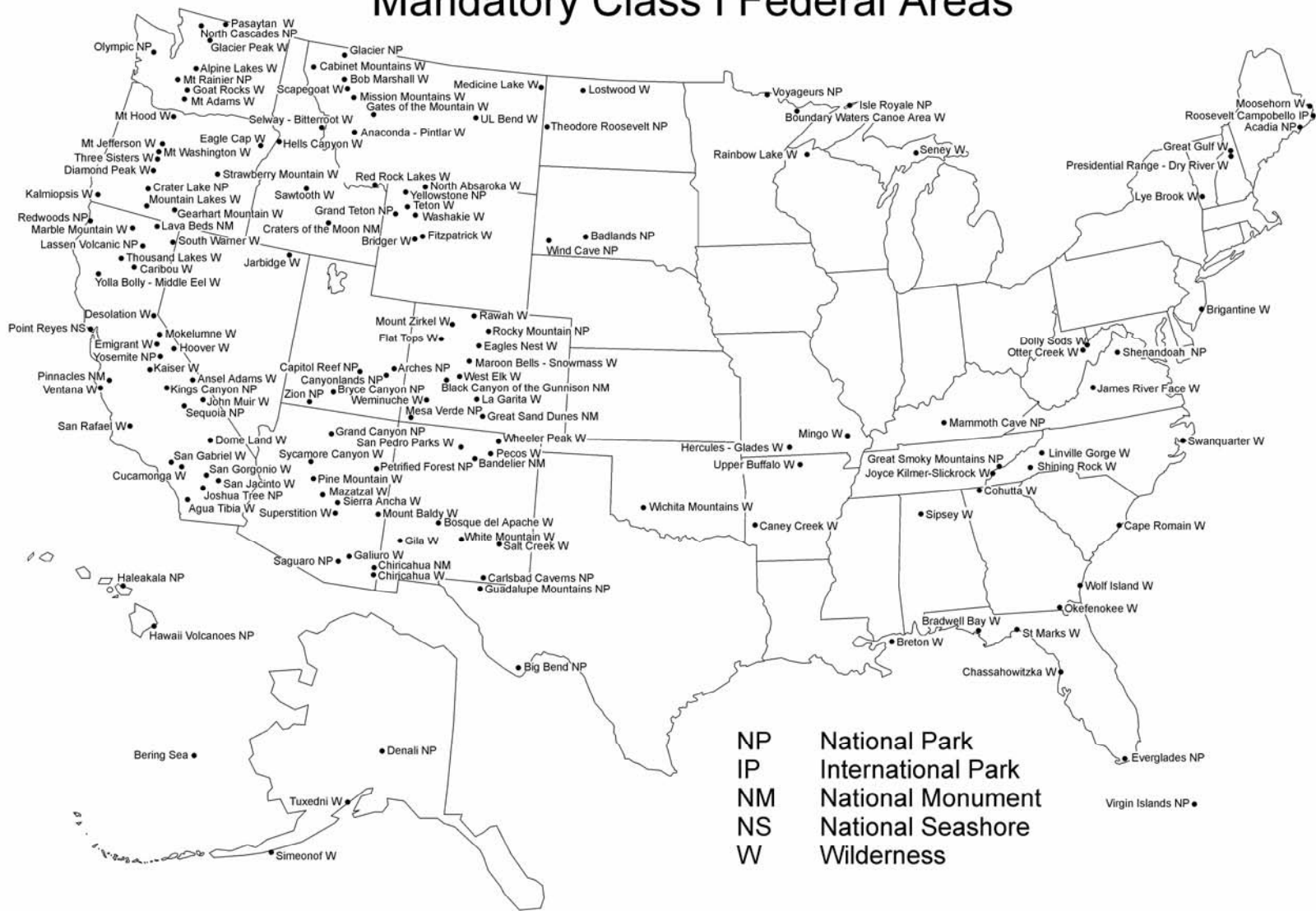
Presentation to the Agriculture Air Quality Task Force

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National Visibility Goal

- The 1977 amendments to the Clean Air Act established a national goal of “the prevention of any future, and remedying of any existing impairment of visibility in mandatory class I Federal areas from man made pollution.”
- States are required to develop implementation plans that make “reasonable progress” toward the national visibility goal.

Mandatory Class I Federal Areas



**Visibility impairment
can be classified into
3 general categories:**



Layered Haze



Plume Haze



Uniform Haze

Visibility Impairment

- Associated with discoloration, haziness, loss of detail and scenic features
- How visibility impairment manifests itself depends on the extent and distribution of small particles in the atmosphere

What is Reasonable Progress?

For all types of impairment, if any contribution impairment is linked to a single source or identified groups of sources contributing to impairment:

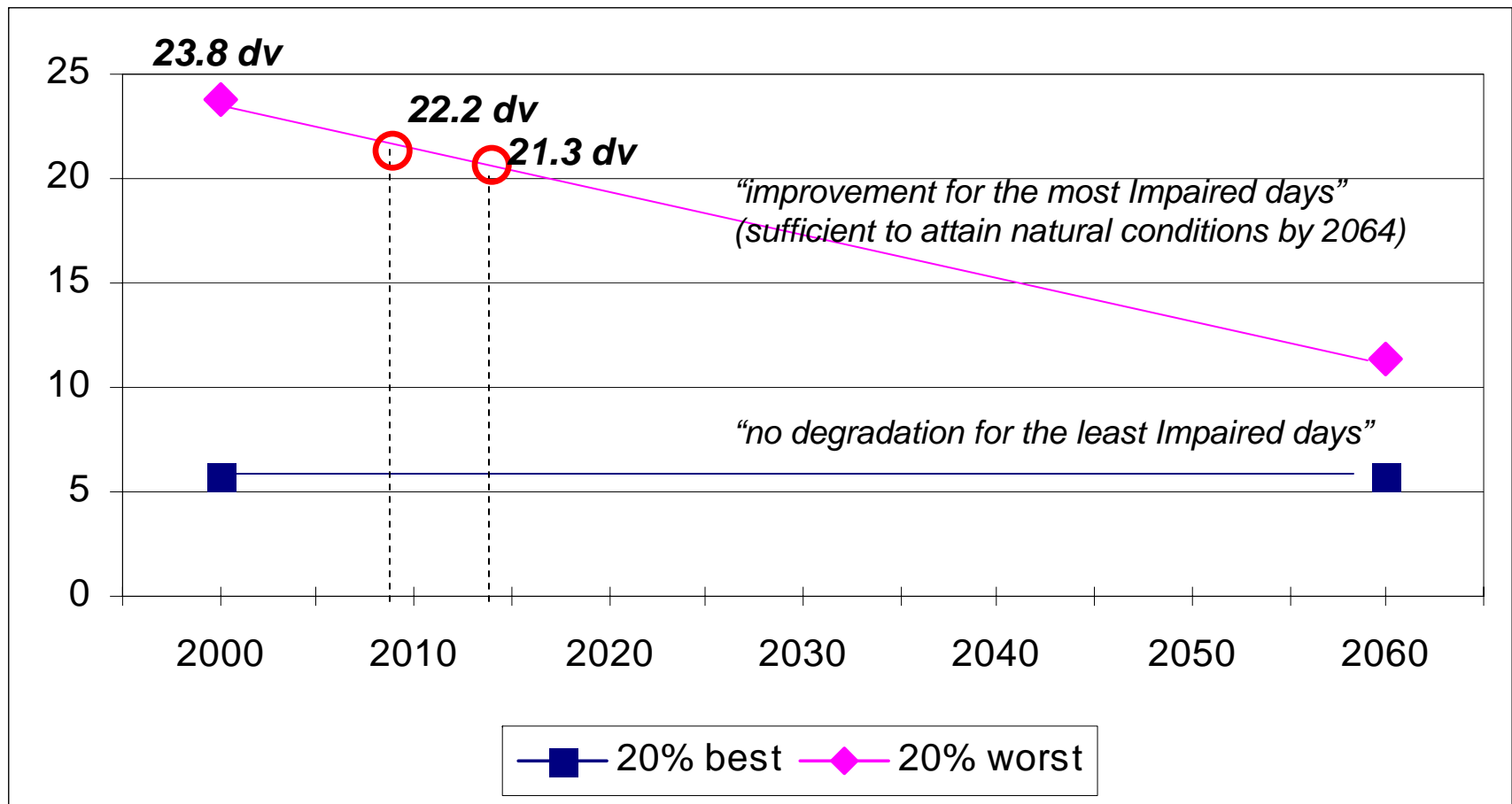
- If an industrial source is subject to “BART” assess the statutory factors and choose appropriate controls
- For other sources, incorporate appropriate measures in the SIP.

What is Reasonable Progress?

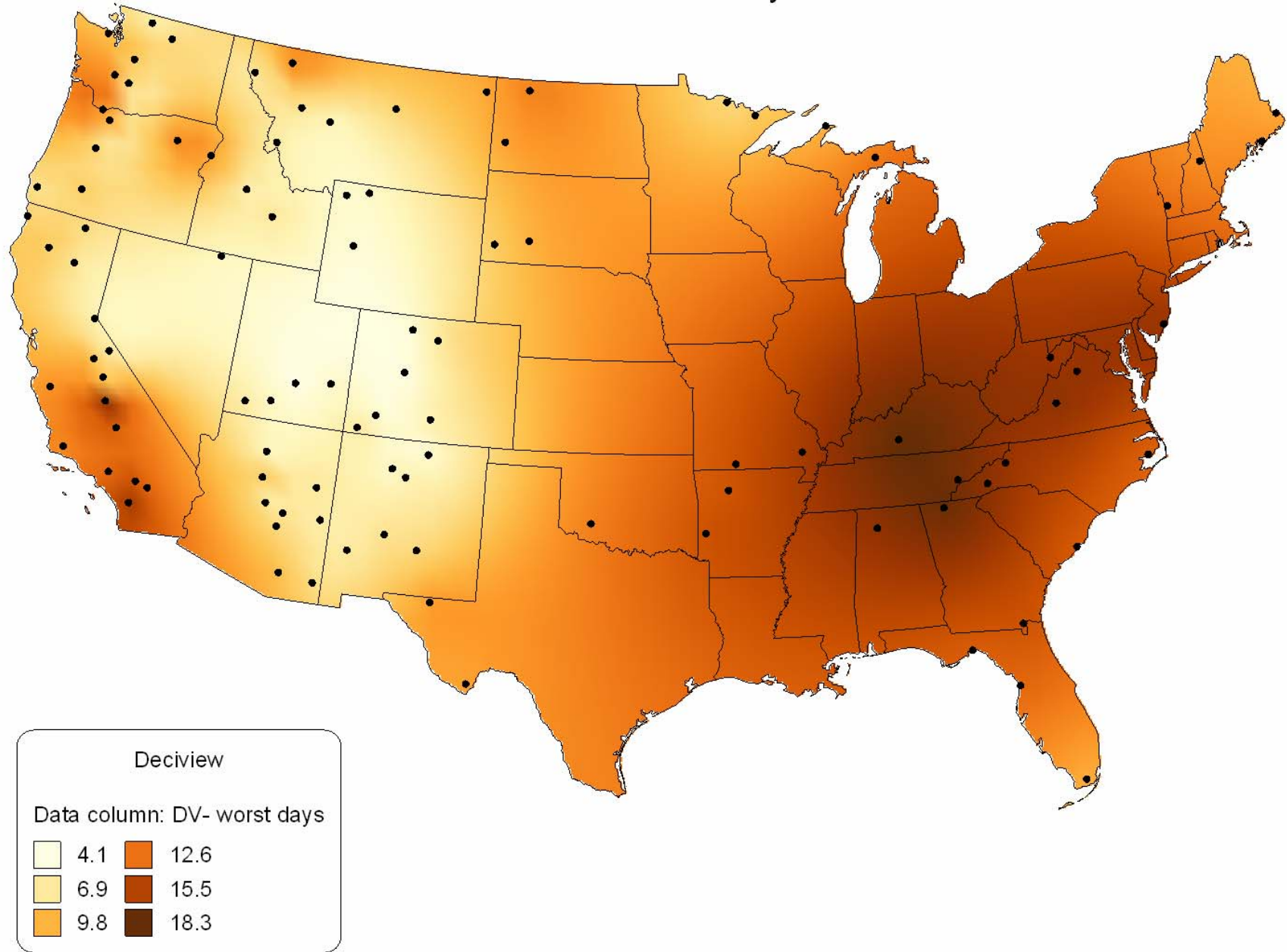
For Regional Haze any State with Class I areas must establish goals to:

- Improve visibility on the haziest 20 percent of the days
- Ensure no degradation occurs on the clearest 20 percent of the days over the period of each implementation plan
- Determine a visibility baseline from a national network of visibility monitors representing Class I areas

Example of a Uniform Rate of Progress Assessment for Regional Haze



Difference Between 2000-2003 Average Deciview on Worst Days and Estimated Deciview on Worst Days Under Natural Conditions



What is Reasonable Progress?

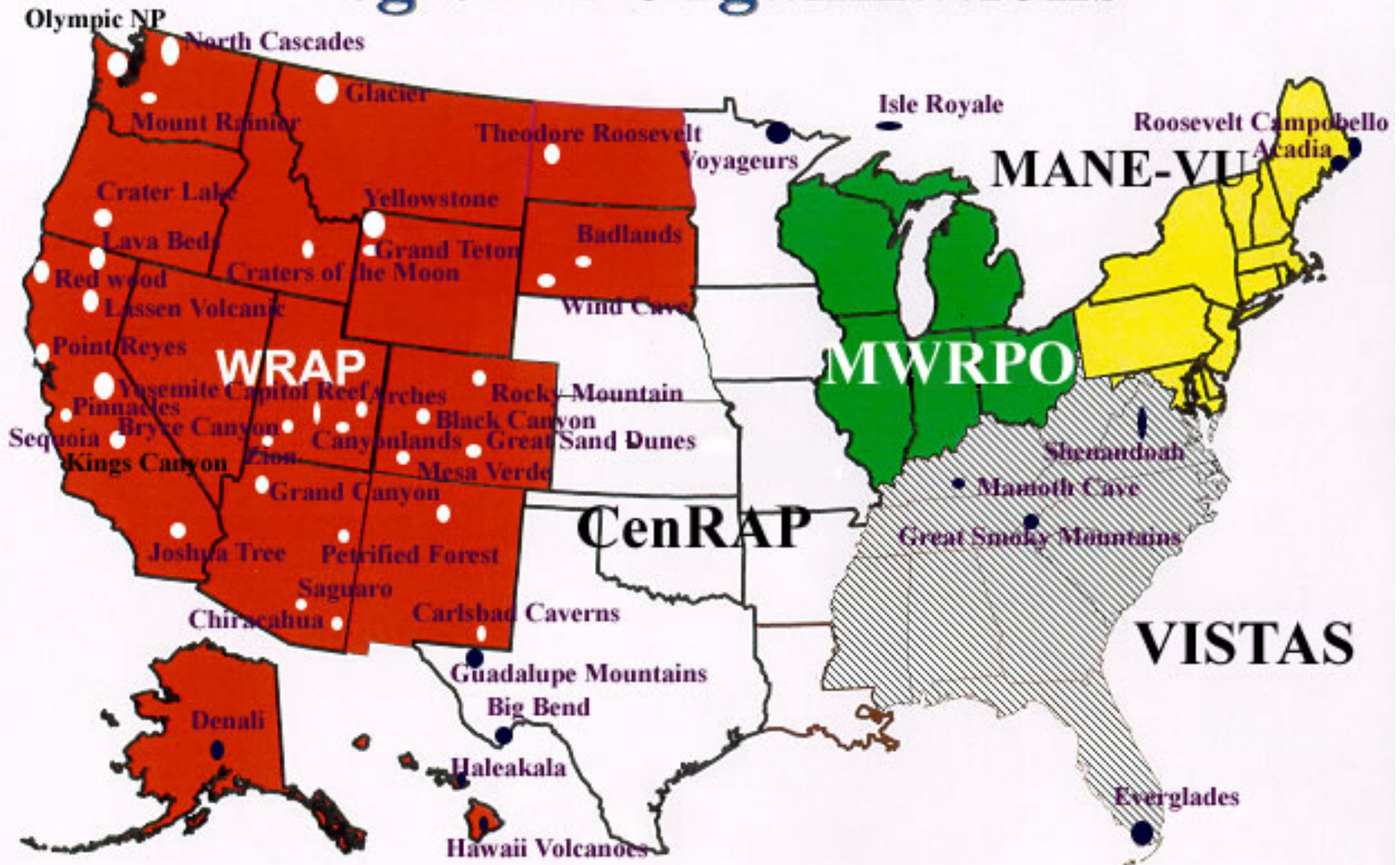
Clean Air Act factors for consideration in addressing visibility impairment:

- Costs
- Timing
- Energy and nonair quality environmental impact
- Remaining useful life of any existing source subject to control requirements

Regulatory Timeline

- State Implementation Plans due at the end of 2007
- These plans will contain the visibility protection program for 2008 to 2018
- The plans will be reviewed in 2013 and completely revised by the end of 2018 to cover the next 10 year period.

Regional Organizations



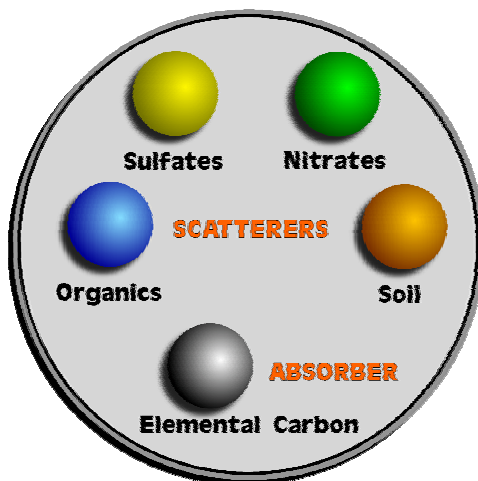
RPO Activities

- Determine “natural conditions”
- Assessment of Current Conditions
- Attribution
 - Emissions (all sectors)
 - Air Quality Modeling
- Help States determine strategies
 - Regional
 - Local

Agricultural Activities Which May Affect Visibility

- Use of fire
 - Fire releases organic aerosols and elemental carbon
 - Impacts will be governed by total mass and distance to class I areas
- Tilling
 - Less likely to have any impact at class I areas
 - Likely to be localized impacts
- Ammonia
 - fertilizer

- Fine particles most responsible for visibility impairments are sulfates, nitrates, soil dust, organic carbon, and elemental carbon (soot).
 - Sulfates, nitrates, soil, organic carbon, and soil dust scatter light
 - Elemental carbon absorbs light.



Organics Least Understood

- Expansion of the visibility aerosol monitoring system and new atmospheric modeling of aerosols has given States a better understanding of the causes of impairment
- Still, the least understood major aerosol component is the organic fraction

Smoke particles scatter about 85% of the light that strikes them

- Most smoke particles have a diameter in the range of .1 to .7 μm
- Visible Wavelengths: .4 -.7 μm

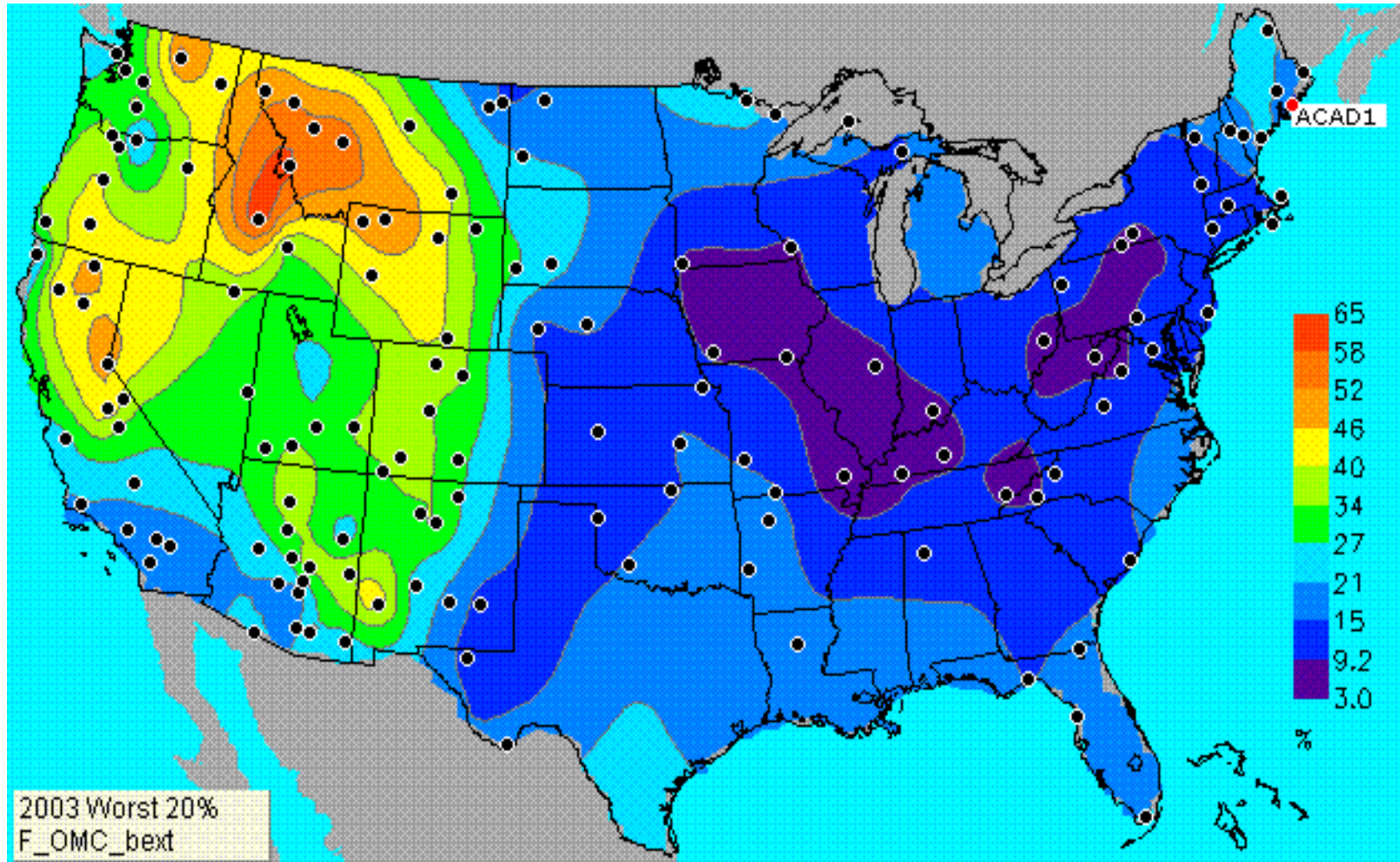
What Happens to Smoke Particles?

- It takes about 35 days for a particle between 0.1 and 1.0 μm to drop 1000 ft. (in still, dry air)
- Most smoke particles = .1 to .7 μm
Particles of this size form excellent cloud condensation nuclei and may assist in the formation of rain or fog droplets and can be removed from the atmosphere.
- It has been estimated that smoke particles have an average "life-span" of 2-3 weeks.



Percent of Extinction Due to Fine Organic Aerosol

20 Percent Worst Days in 2003



Conclusions

- Organics most important in the West for this first round of Visibility Protections SIPs
- Much of the western organic aerosols could be linked to wildfire and wildland prescribed fire
- As the East and Midwest address sulfur emissions from industrial sources, organics will become more important
- States may need to address local agricultural practices for a limited number of Class I areas

SIP Approach

- Manage smoke from all sources in a way that minimizes impacts on Class I areas
 - Modify “non burn” days
 - Investigate ways to burn less
- Organic speciation studies in areas that might be affected by agricultural activities as part of the SIP monitoring strategy
- Plan ahead
 - Role of ammonia