

Mid-Atlantic/Northeast Visibility Union

MANE-VU



MANE-VU's Low-Sulfur Initiative

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and Residual Oil Initiative

Stakeholder Meeting

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Presentation Overview

- Why Are We Here?
- Technical Considerations
- MANE-VU Low-Sulfur Fuel Initiative
- Modeling of MANE-VU Low-Sulfur Fuel Initiative

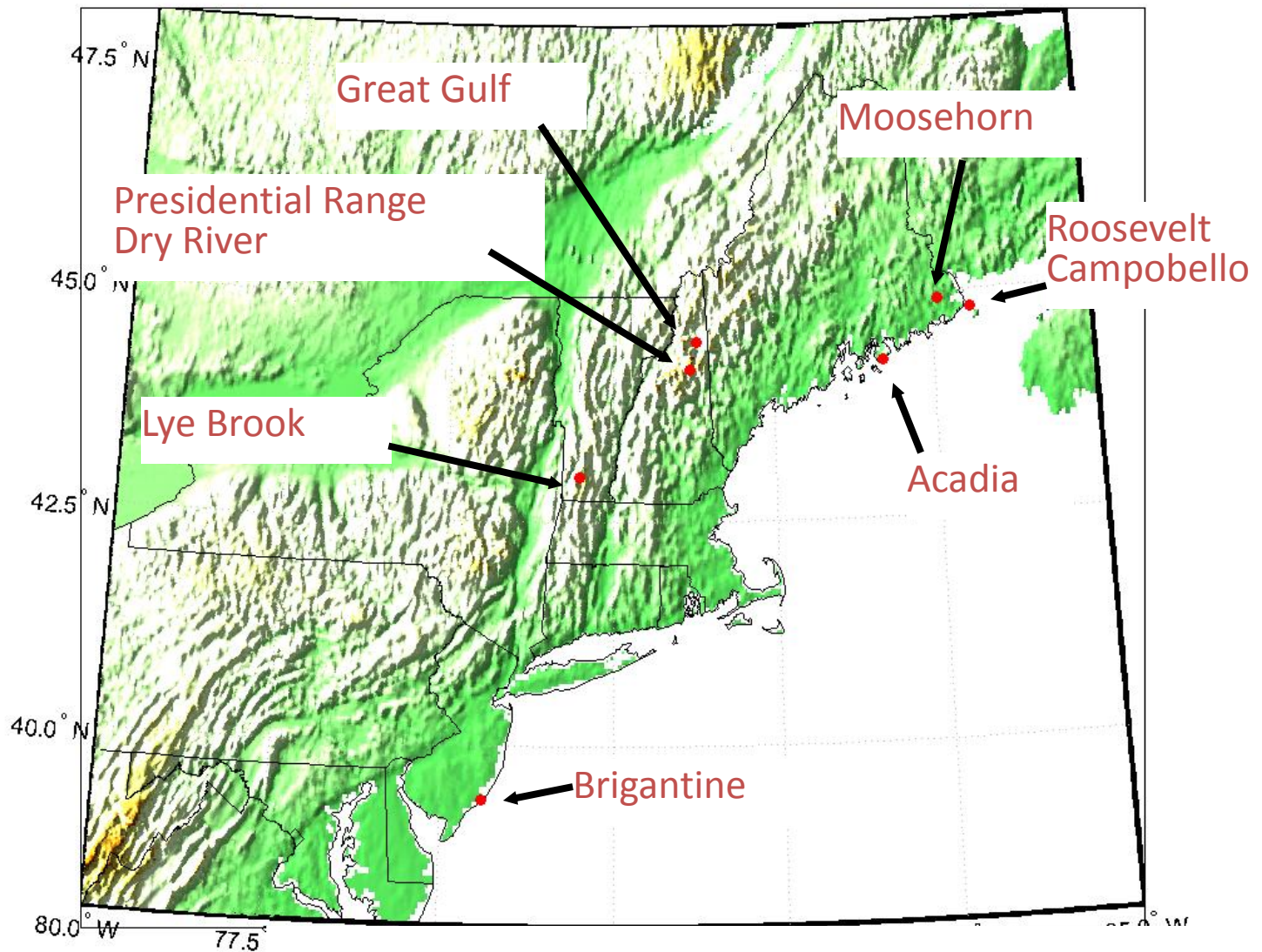
Why Are We Here?

General Background

- The 1977 Clean Air Act Amendments declared a national goal to prevent any future, and remedy any existing, visibility impairment in the Nation's 156 Class I Federal areas (national parks, wilderness areas, and wildlife refuges)
- The goal is to reach natural visibility conditions by 2064

General Background (cont.)

- MANE-VU is the Mid-Atlantic / Northeast Visibility Union set up in 2000 under the auspices of the Ozone Transport Commission (OTC) as the Regional Planning Organization (RPO) to help the Northeast states plan for their Regional Haze State Implementation Plan (SIP) submittals
- There are 7 Class I areas in MANE-VU – 3 in Maine, 2 in New Hampshire, 1 in Vermont, and 1 in New Jersey



Class I areas in the MANE-VU Region

General Background (cont.)

- The 1999 regional haze regulations (RHR) set up 10-year planning timeframes for the Class I states to make “reasonable progress” towards the 2064 goal – the first milestone is 2018
- The Class I states must formally “consult” with contributing states in setting their reasonable progress (RP) goals

General Background (cont.)

Per the RHR, potential control strategies are evaluated for their “reasonableness” taking into consideration four statutory factors:

- 1) The costs of compliance,
- 2) The time necessary for compliance,
- 3) The energy and non-air quality impacts, and
- 4) The remaining useful life of sources subject to the requirements.

General Background (cont.)

- MANE-VU completed the “Assessment of Reasonable Progress for Regional Haze In MANE-VU Class I Areas” in July 2007
- The report evaluated 4 source categories (EGUs, ICI boilers, cement and lime kilns, and heating oil) using the four-factor analysis for potential sulfate reductions

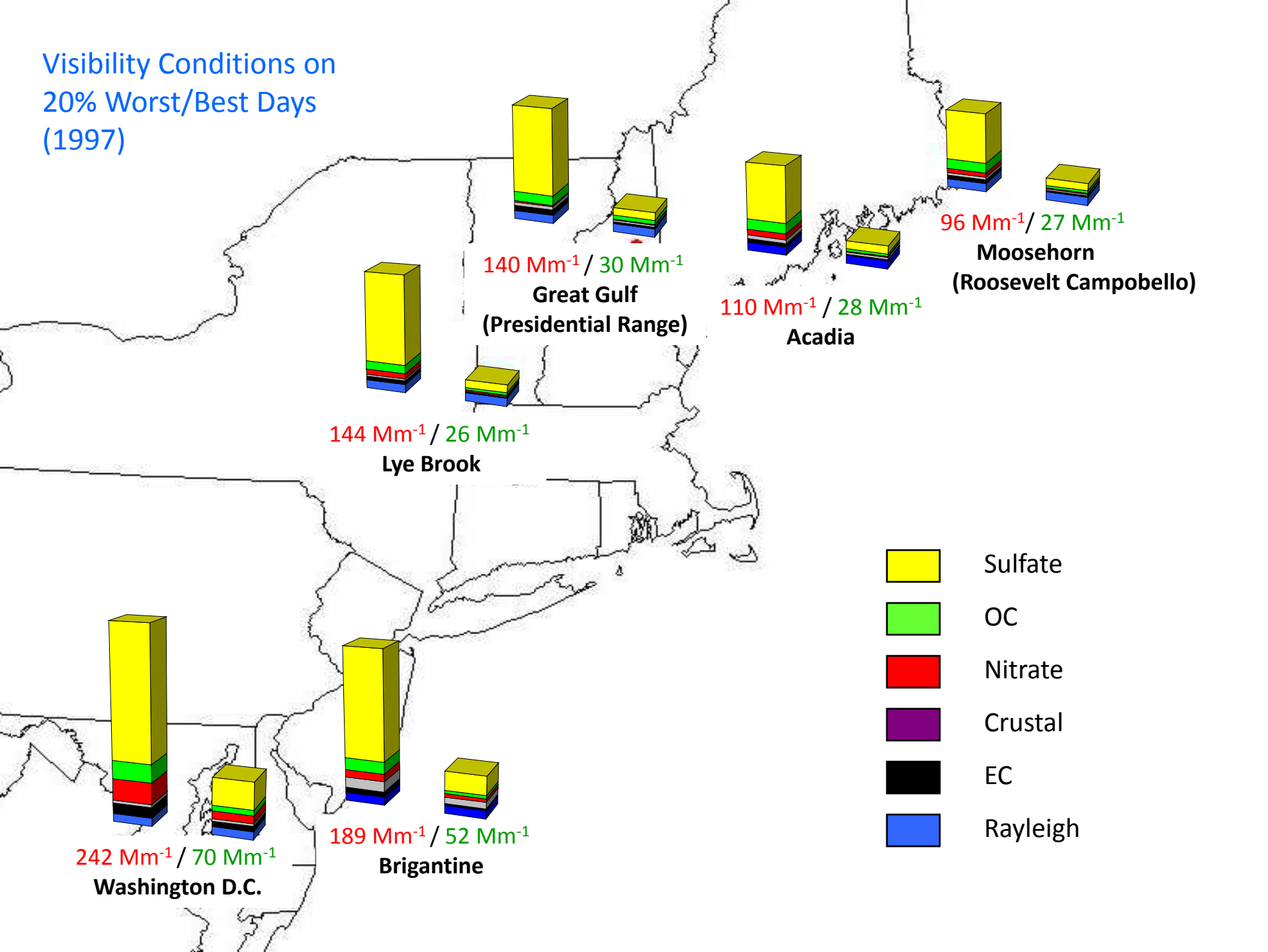
General Background (cont.)

- Both the non-Class I states and the Class I states must set out long term strategies (LTS) in their SIPs to achieve the Class I states' reasonable progress goals
- There is a “mid-course review” within each 10-year planning timeframe for states to evaluate progress towards their LTS and RP goals – the first review is due in 2013

Technical Considerations

- NESCAUM performed a Contribution Assessment of visibility impairment in the 7 MANE-VU Class I Federal areas
- The sulfate ion (SO_4) is the primary chemical species contributing to visibility impairment, especially on the 20% worst days

Visibility Conditions on 20% Worst/Best Days (1997)

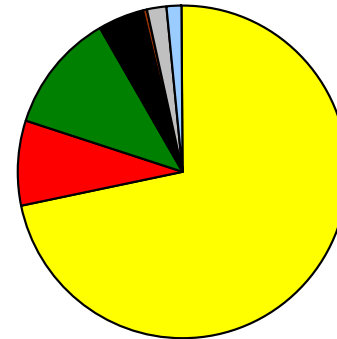
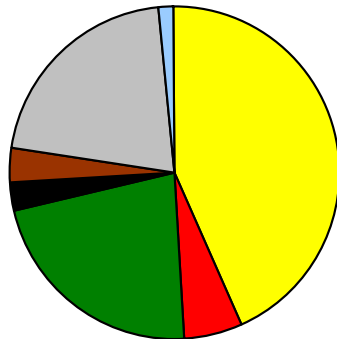


Sulfate Role in Visibility Impairment

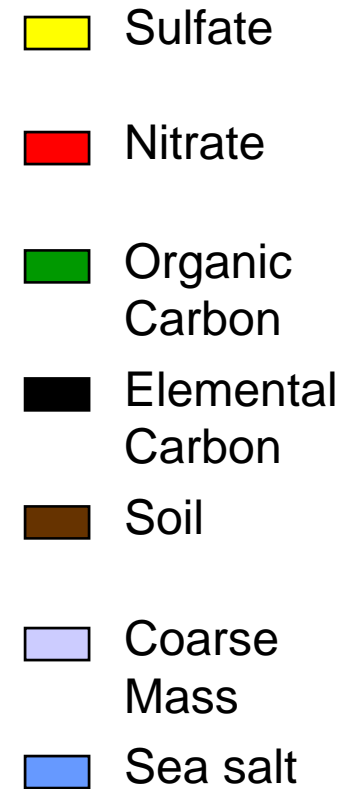
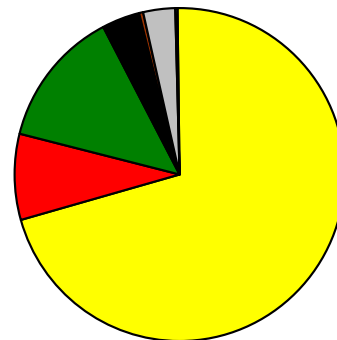
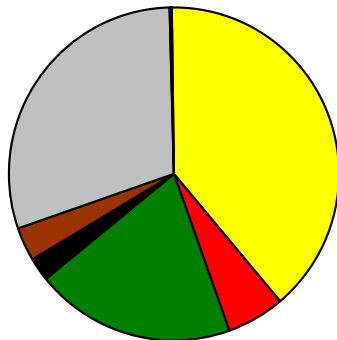
20% Worst Day **Mass**
[2000-2004]

20% Worst Day **Haze**
[2000-2004]

Acadia, ME



Brigantine, NJ



MANE-VU Low-Sulfur Fuel Initiative

At the MANE-VU Intra-state Consultation Meeting – June 2007, states discussed:

- The reasonable assumption underlying the low-sulfur fuel oil strategy is that refiners can, by 2018, produce home heating and fuel oils that contain 50% less sulfur for the heavier grades (#4 and #6 residual), and a minimum of 75% and maximum of 99.25% less sulfur in #2 fuel oil (also known as home heating oil, distillate, or diesel fuel) at an acceptably small increase in price to the end user.
- As much as 75% of the total sulfur reductions achieved by this strategy will come from using the low-sulfur #2 distillate for space heating in the residential and commercial sectors.
- Some MANE-VU states are interested in low-sulfur oil regulations much sooner than 2018 in order to aid their PM2.5 attainment efforts. However, all of the MANE-VU states agree that a low-sulfur oil strategy is both reasonable and achievable by 2018.

MANE-VU Low-Sulfur Fuel Initiative (cont).

- MANE-VU Class I States adopted a Resolution on Principles for Implementing the Regional Haze Rule, including:
 - Establishing Reasonable Progress Goals reflecting the 4-factor analysis to determine measures to be implemented by contributing states; and
 - Asking all states contributing to impairment to make timely emissions reductions consistent with those measures determined to be reasonable.
- The MANE-VU states adopted a “Statement of the Mid-Atlantic Visibility Union (MANE-VU) Concerning a Course of Action Within MANE-VU Toward Assuring Reasonable Progress”

MANE-VU Low-Sulfur Fuel Initiative (cont).

MANE-VU Statements – the “Ask” for Improved Visibility from States

MANE-VU:

- BART
- Focused EGU Strategy within CAIR
- **Low sulfur fuel oil strategy**
- Continued evaluation of other measures, including Energy Efficiency, Clean Fuels and others

Other Regions:

- BART
- Focused EGU Strategy within CAIR
- 28% reduction in non-EGU SO₂ emissions
- Continued evaluation of other measures, including from all coal-burning facilities, and others

MANE-VU Low-Sulfur Fuel Initiative (cont.)

- Low Sulfur Oil – inner zone (NJ, NY, DE & PA, or portions thereof)

Strategy	S-1	S-2
distillate	500 ppm	15 ppm
#4 oil	0.25% sulfur	0.25% sulfur
#6 oil	0.3-0.5% sulfur	0.3-0.5% sulfur
Required no later than	2012	2016

- Low Sulfur Oil – outer zone (rest of M-V)

Strategy	S-1	S-2
distillate	500 ppm	15 ppm
#4 oil		0.25% sulfur
#6 oil		0.3-0.5% sulfur
Required no later than	2014	2018

Largest Sources of SO₂ Emission in the MANE-VU Region

Source Category	Emissions (tpy)	% of Regional Total
EGUs	1,628,333	71%
ICI Boilers	156,333	7%
Residential/Commercial Oil Heat Burners & Furnaces	153,225	7%

Annual SO₂ Emission Benefits in the MANE-VU Region in 2018

2018	15 ppm #2 (from 2000+ ppm baseline)	5,000 ppm #4 & #6 (from 10,000 ppm baseline)	Total Reductions from Low Sulfur Oil Strategy
Emission Reductions	167,000 tons	19,000 tons	186,000 tons