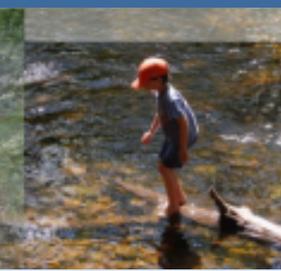
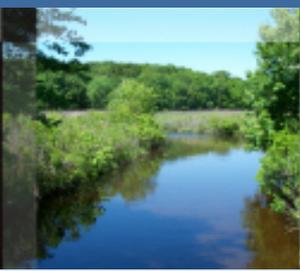




Connecticut Department of Energy and Environmental Protection



Connecticut Department of
**ENERGY &
ENVIRONMENTAL
PROTECTION**

EPA's Regional Haze Modeling

The Results and How it Compares with Other Modeling

December 14, 2017

Kate Knight

SIPRAC, DEEP HQ



Connecticut Department of Energy and Environmental Protection



Documentation for the EPA's
Preliminary 2028 Regional Haze Modeling

Office of Air Quality Planning and Standards
United States Environmental Protection Agency
October 2017

On October 19, 2017, EPA released preliminary modeling results for the 2028 regional haze planning period.

Link to Documentation:

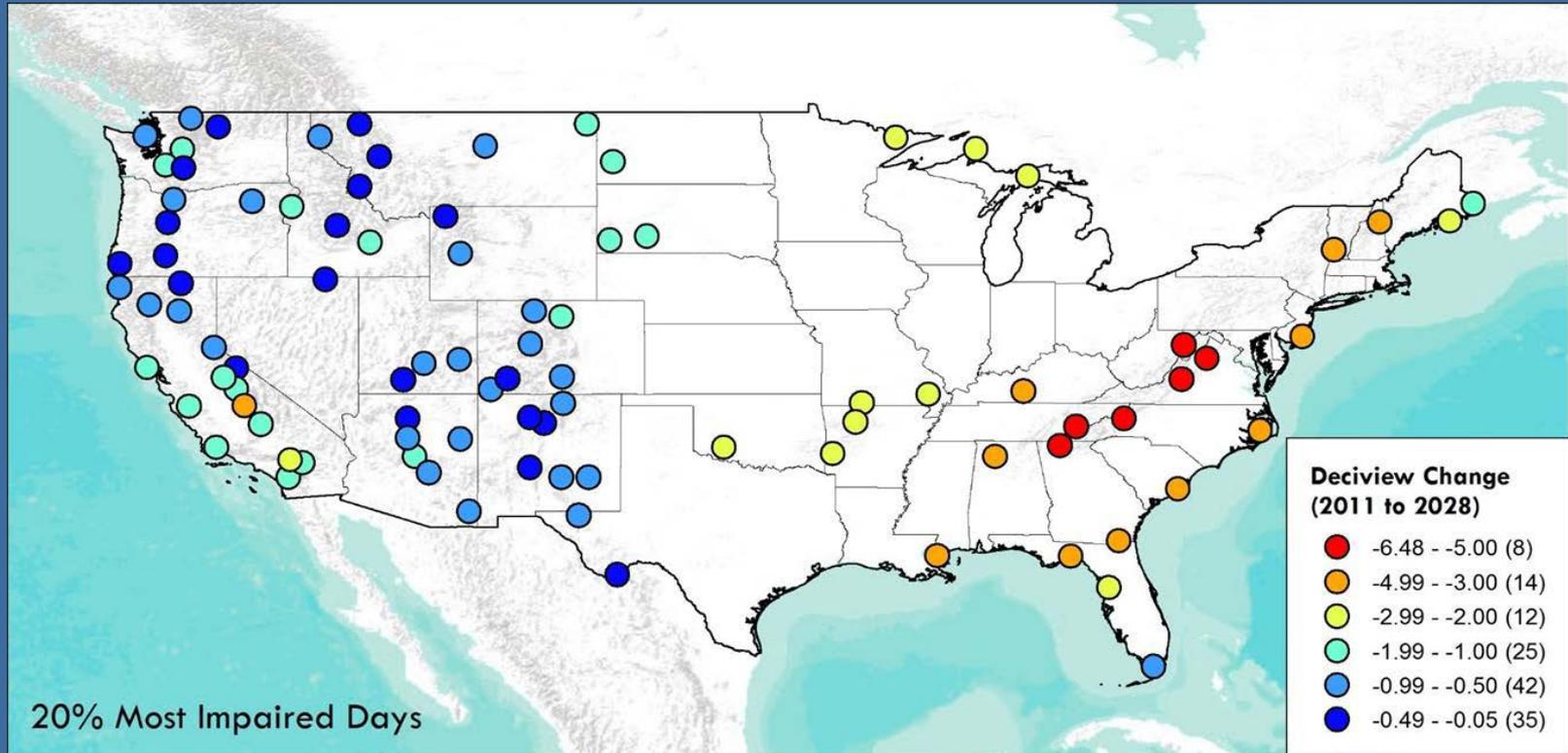
https://www3.epa.gov/ttn/scram/reports/2028_Regional_Haze_Modeling-TSD.pdf

Link to platform:

<https://www.epa.gov/air-emissions-modeling/2011-version-63-platform>



EPA's 2028 Modeled Improvement



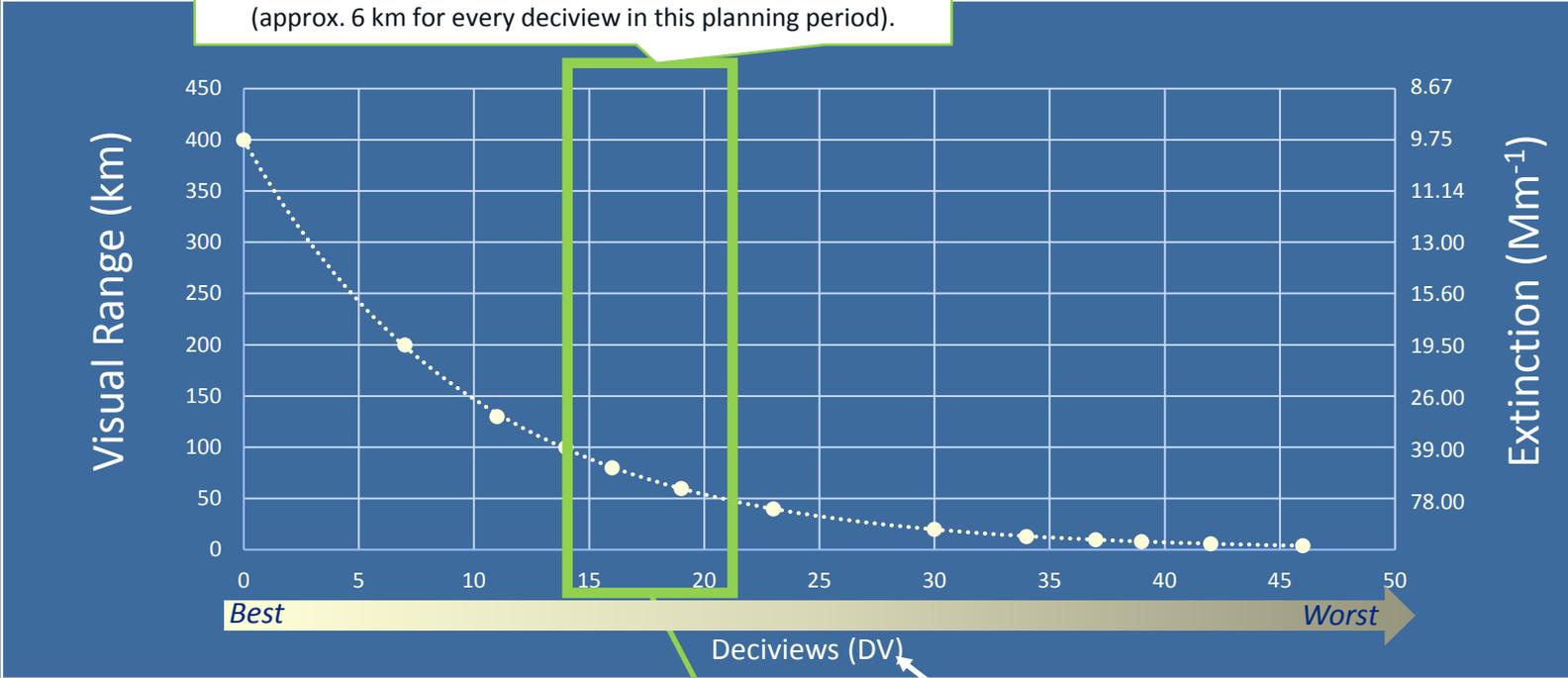
Source: EPA, 2017 Documentation for EPA's Preliminary Regional Haze Modeling pg 20



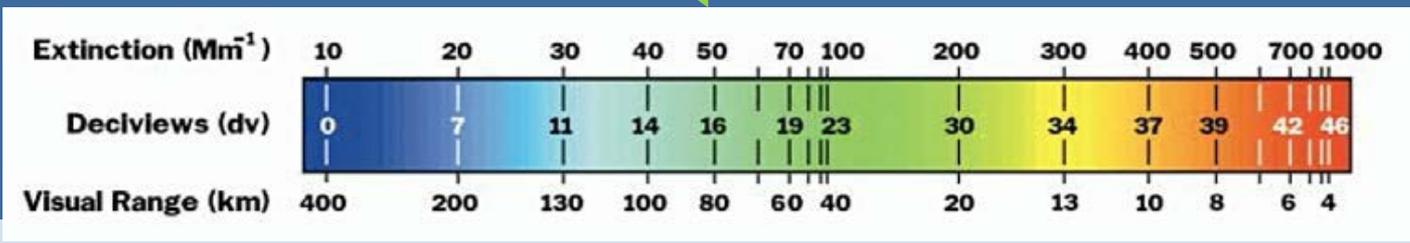
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Regional Haze Metrics

Where we are and expect to be for next planning period (approx. 6 km for every deciview in this planning period).



- Measurement related to the average human eye.
- Might not be ideal measurement for the progress in the next few planning periods.



Modeling - 2028 Worst Days

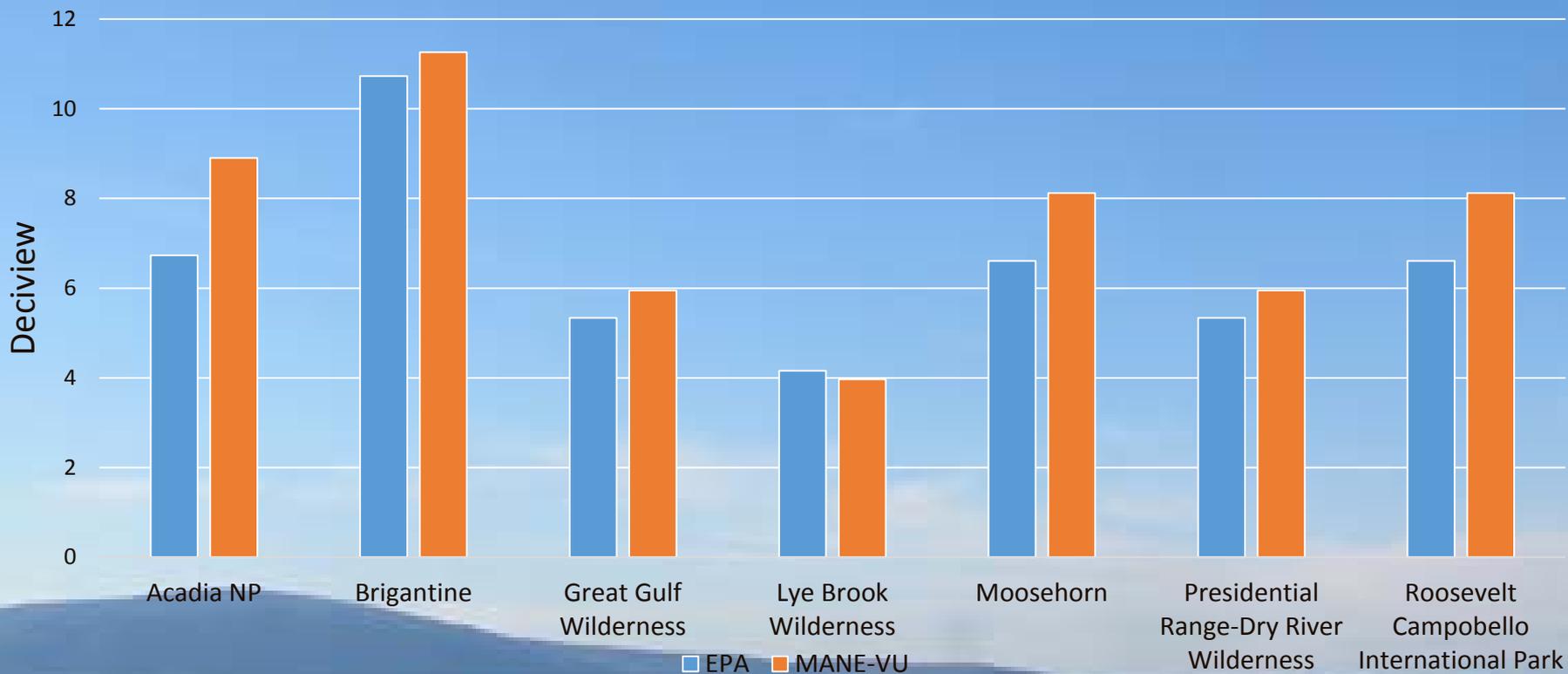


Source: EPA, 2017 Documentation for EPA's Preliminary Regional Haze Modeling and MARAMA 2028 Base Modeling

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Modeled- 2028 Best Days



11/24/2017 2

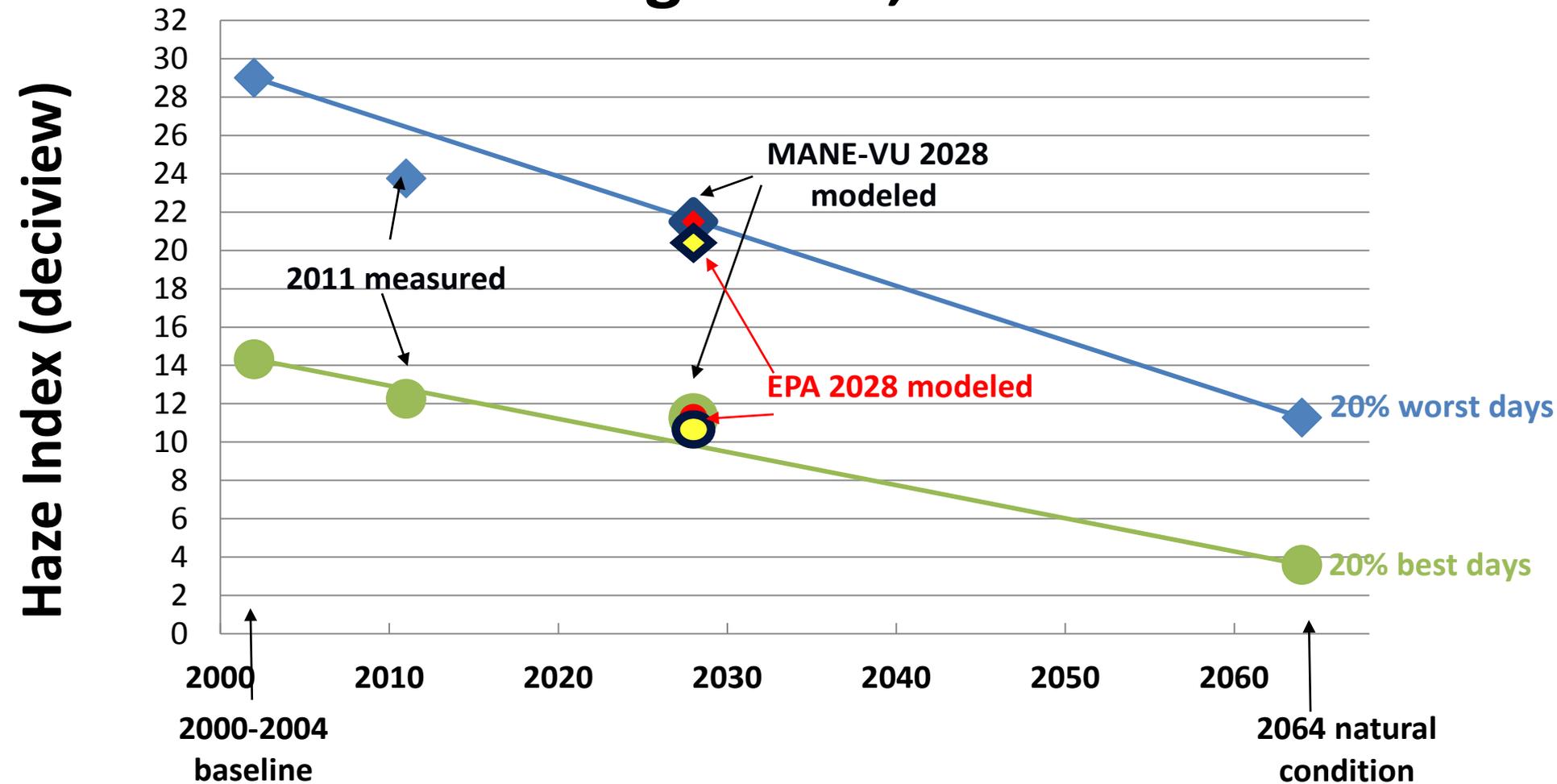
Source: EPA, 2017 Documentation for EPA's Preliminary Regional Haze Modeling and MARAMA 2028 Base Modeling

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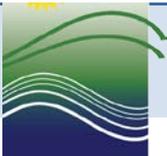
How the 2028 results fit into the final goal

Brigantine, NJ



Source: EPA, 2017 Documentation for EPA's Preliminary Regional Haze Modeling and MARAMA 2028 Base Modeling

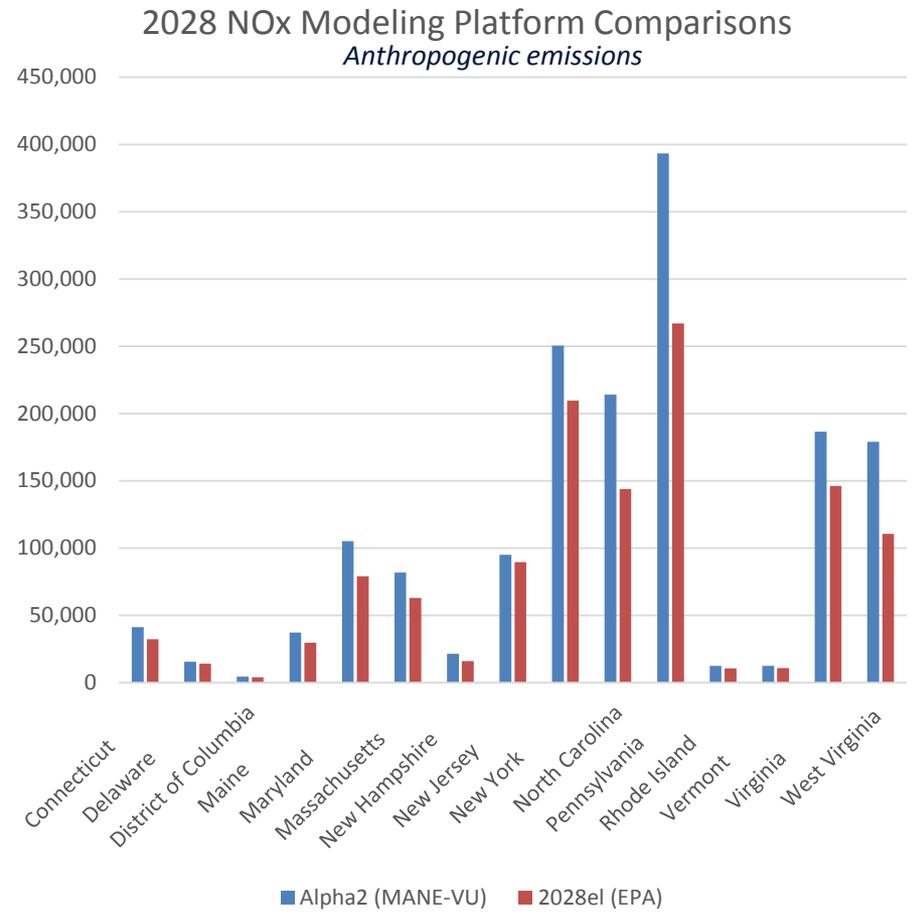
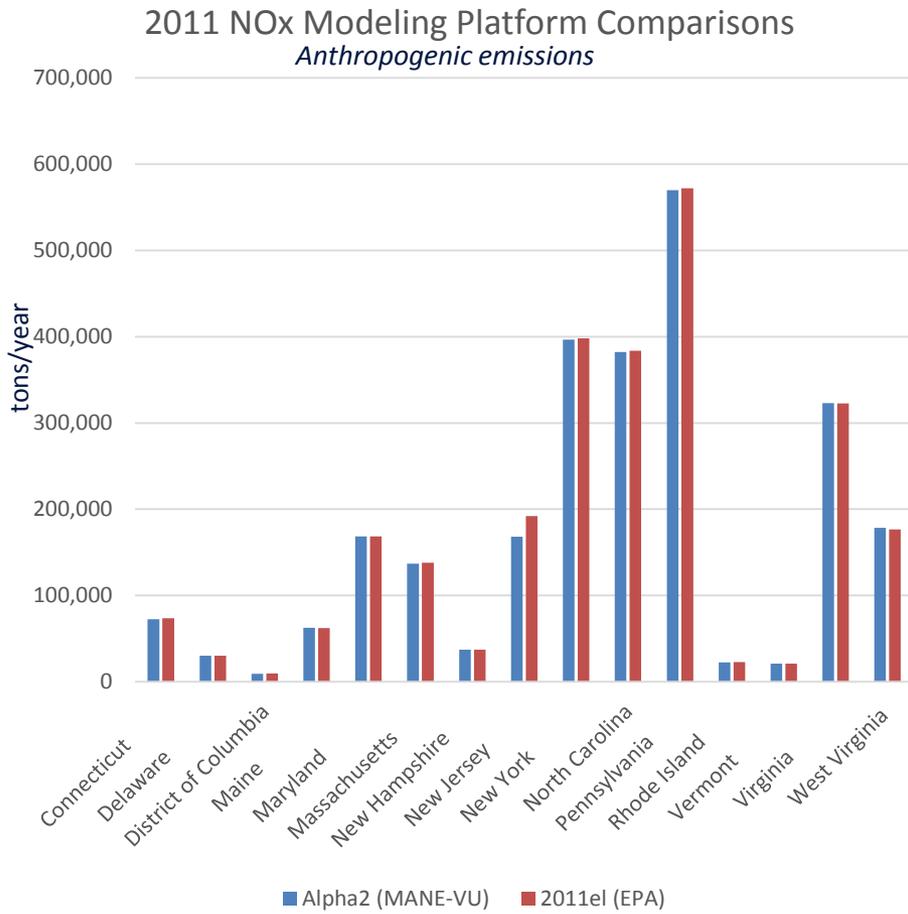
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Where are those differences coming from?

Primarily Inventory Driven:

The assumptions for the growth/control in 2028 are not the same.



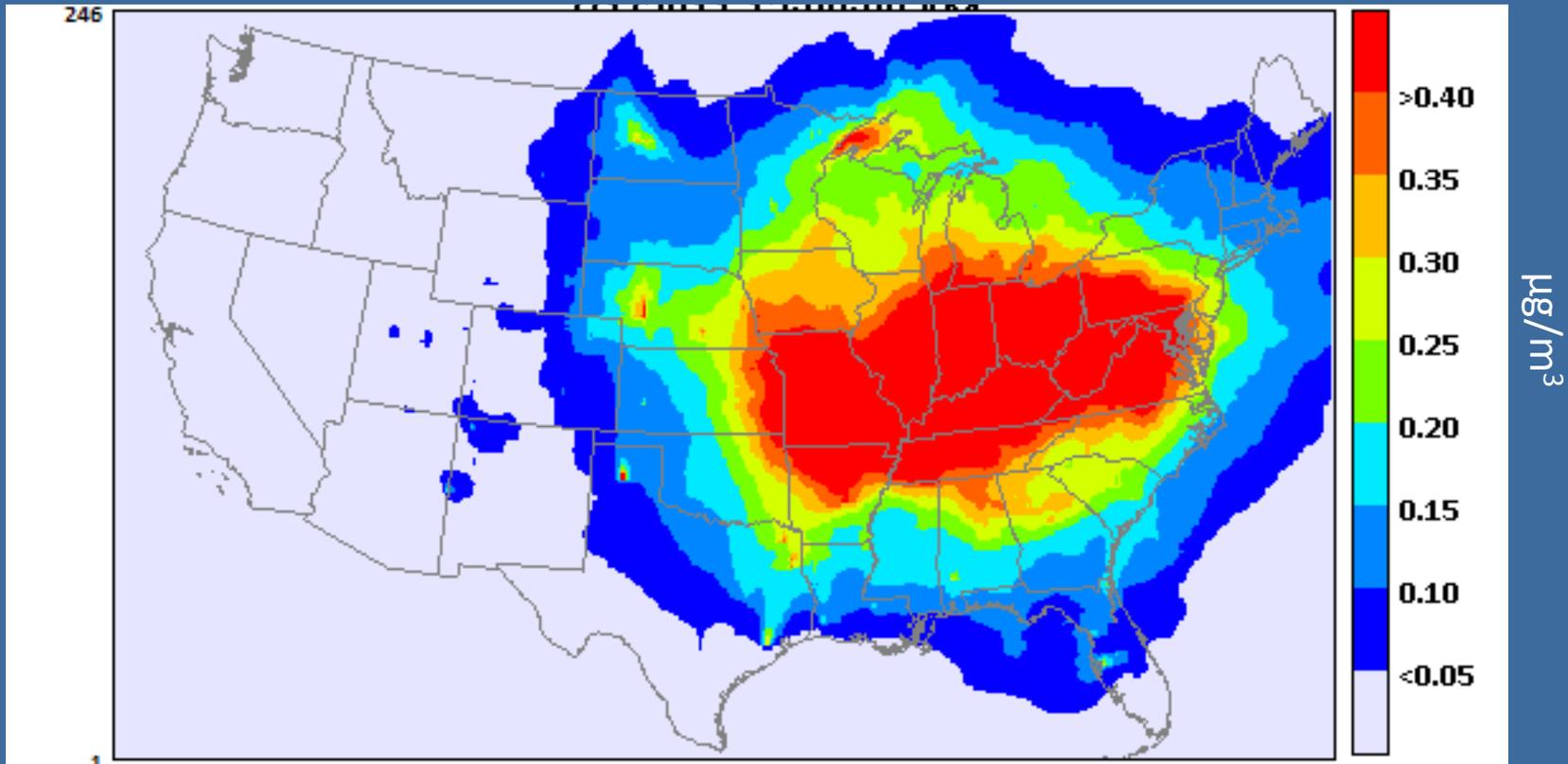
Source: EPA, 2017 modeling platform el reports and MARAMA Appendix GG

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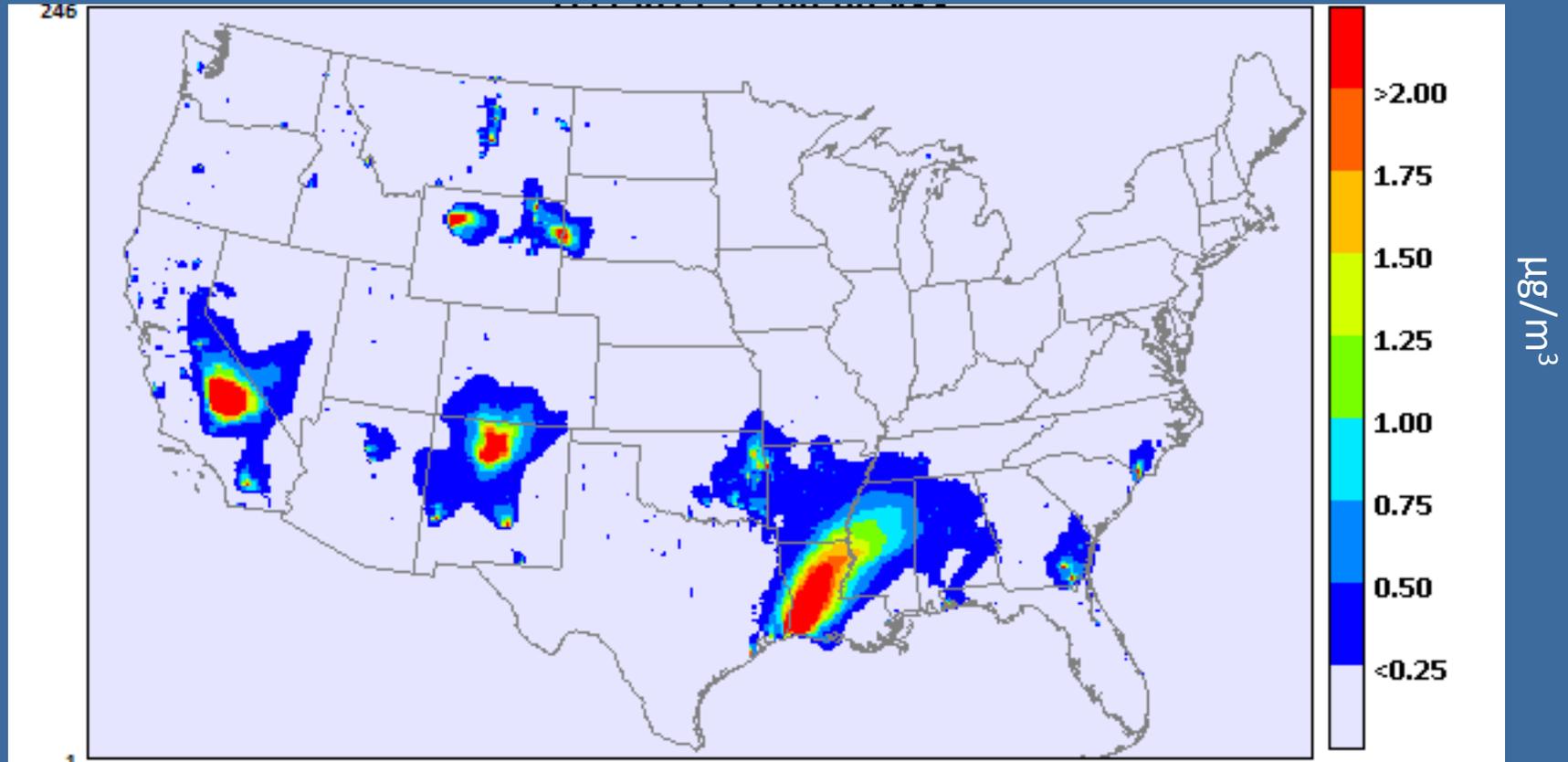
EPA also Provided Sector Tags

Electric Generating Unit Sulfate Contribution- July 2028 Average



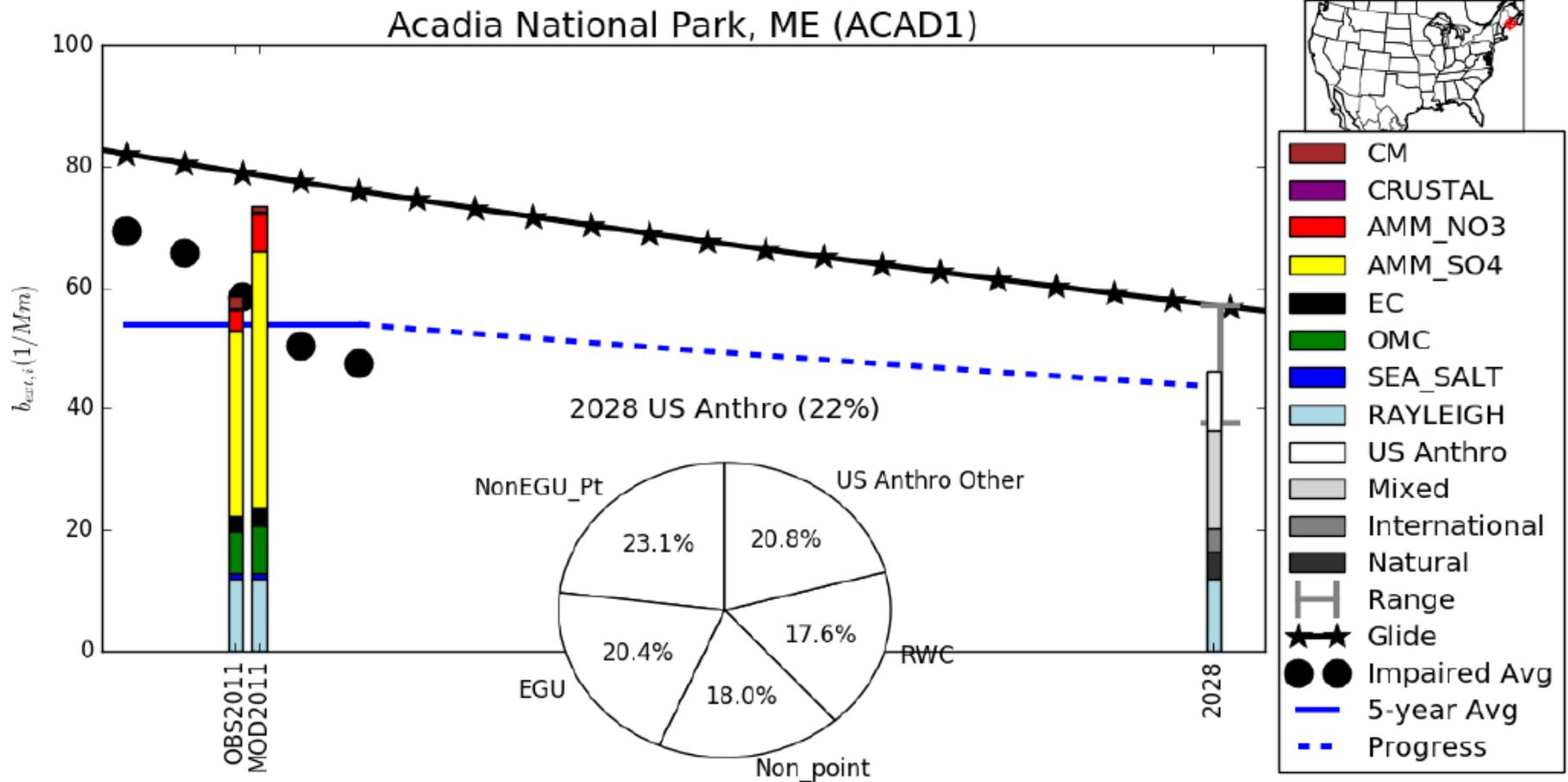
Sector Tags- Example 2

Wildfire Organic Carbon Contribution- July 2028 Average

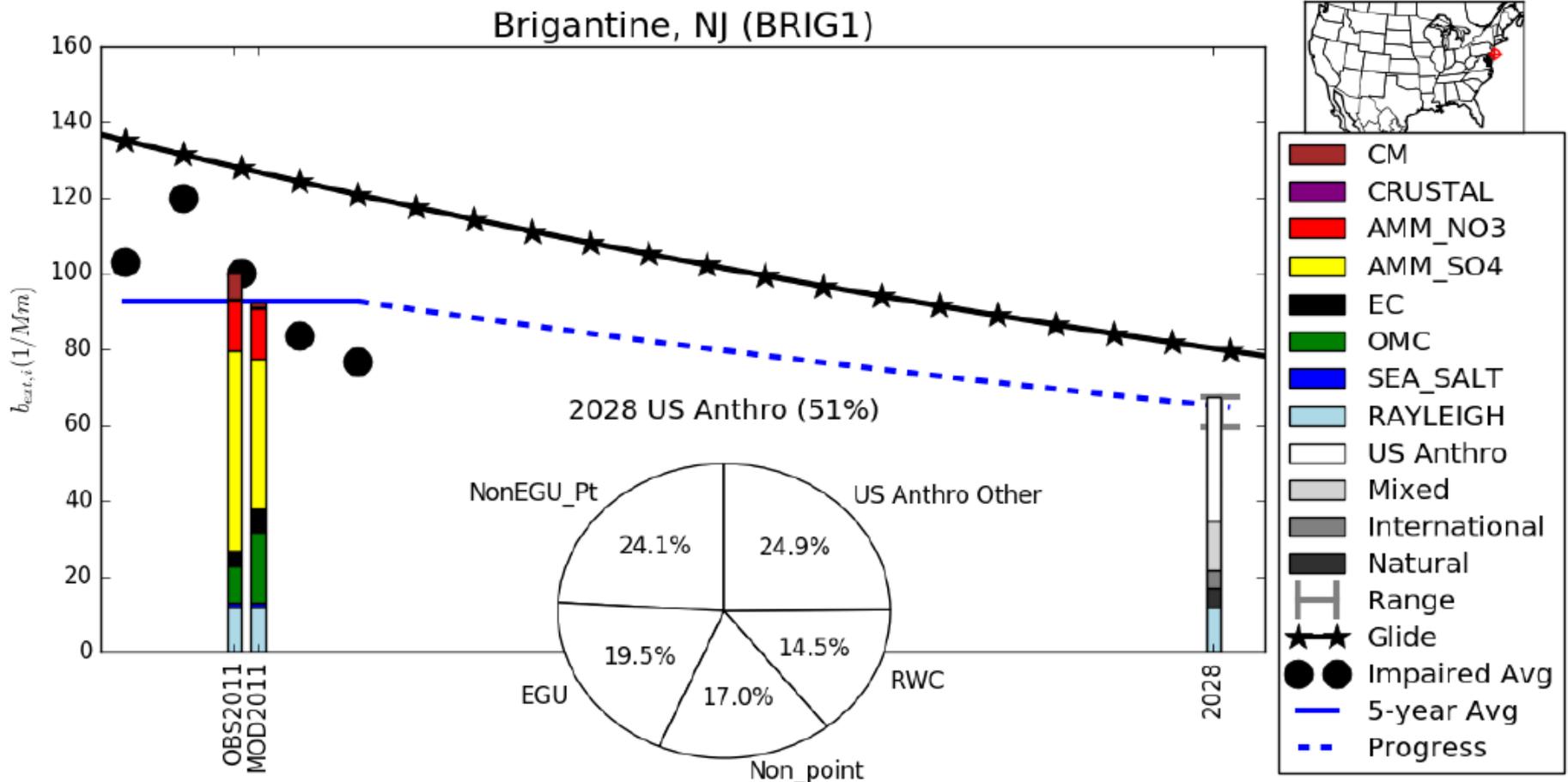


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Sector Tags- Acadia Example



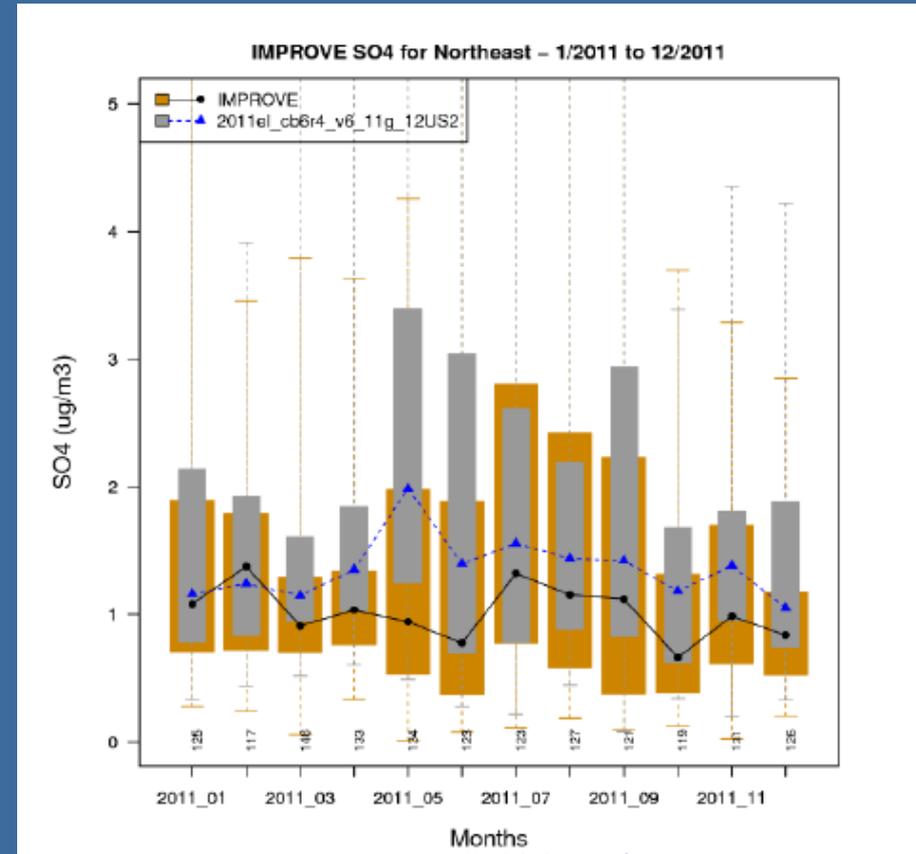
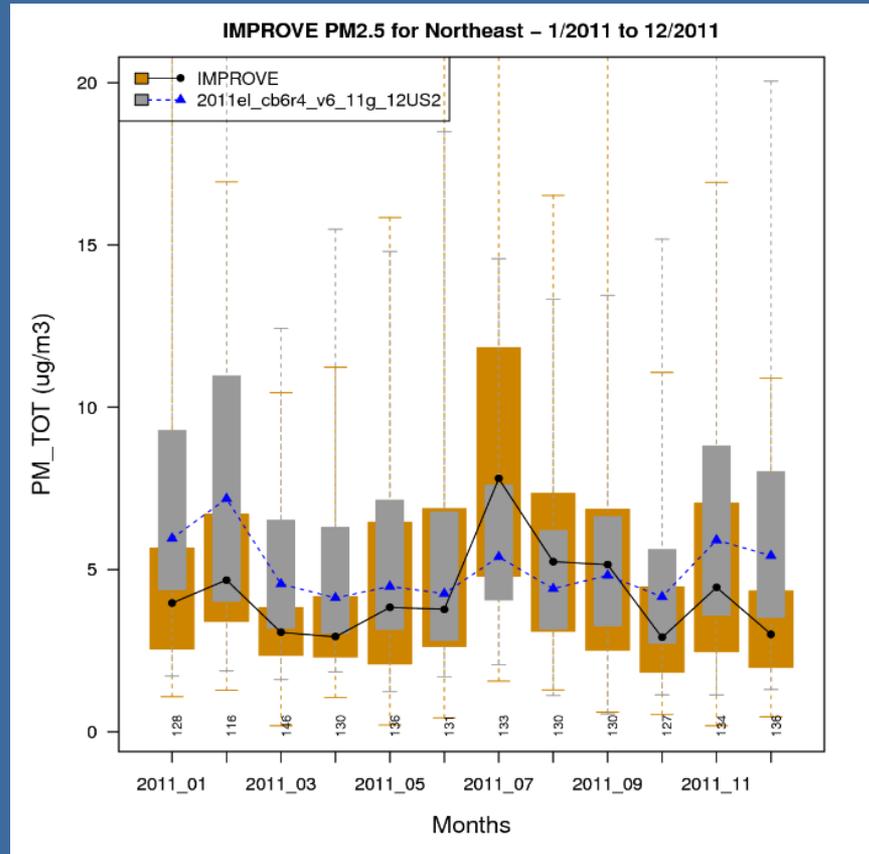
Sector Tags- Brigantine Example



Statistics/Model Performance

What is Model Performance:

- How well the model predicted each pollutant (relevant to regional haze) in each region.



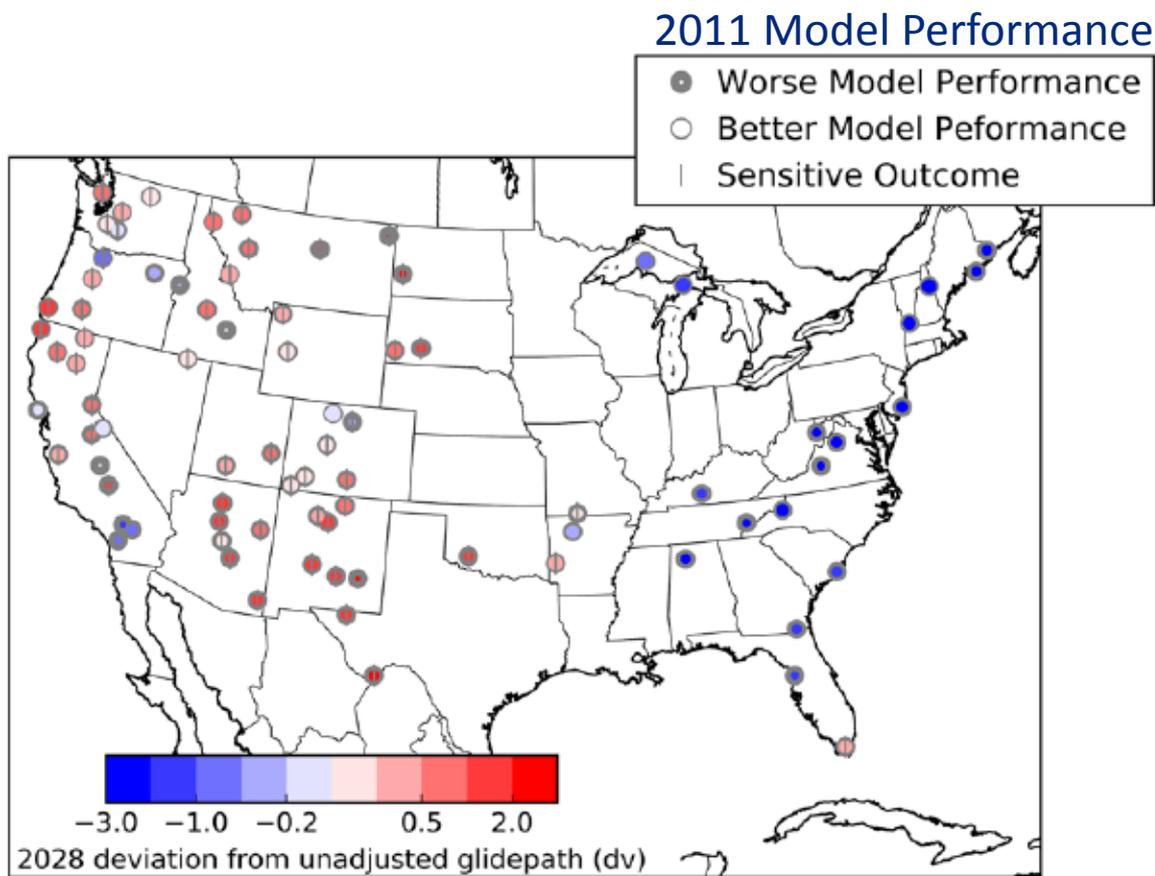
2011 Annual
Normalize Mean Bias 24.2 %
Normalized Mean Error 48.6%



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Source: EPA, 2017 Documentation for EPA's Preliminary Regional Haze Modeling pg 28

Statistics/Model Performance



Note this statistic is based on 2011 Results 2028 despite pairing these results here-
In other words the model's (and thereby platform's) ability to predict 2011 values that were known to occur was pretty good in east.

Source: EPA, 2017 Documentation for EPA's Preliminary Regional Haze Modeling pg A-10 and A-74



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EPA's Summary

Northeast
(Acadia, Lye Brook,
Moose horn,
Campobello, Great
Gulf, Presidential)

Most important ambient PM species contribution to visibility (on 20% most impaired days)	Dominated by sulfate, smaller amount of organic carbon
Model visibility performance summary (on 20% most impaired days)	Performance generally good, but sulfate underpredicted
Uncertainty in sector contributions	Relatively high "mixed" sector contribution percentage (57%-65%) at ACAD1 and MOOS1, relatively low (30-34%) at GRGU1 and LYEB1.
2028 US anthropogenic percent contribution	16-22% at ACAD1 and MOOS1, 30-40% at GRGU1 and LYEB1
Largest US anthropogenic sector contributions	NonEGU point, EGU, nonpoint, and RWC

Eastern
(Brigantine and
Swanquarter)

Most important ambient PM species contribution to visibility (on 20% most impaired days)	Dominated by sulfate, smaller amounts of organic carbon and nitrate
Model visibility performance summary (on 20% most impaired days)	Performance generally good, but sulfate underpredicted
Uncertainty in sector contributions	Relatively low "mixed" sector contribution percentage (29%-38%)
2028 US anthropogenic percent contribution	38-51%
Largest US anthropogenic sector contributions	EGU, nonEGU point, and nonpoint



Connecticut's Perspective

- 2028 Projections are on the optimistic side
- Sectors results (as a percentage) are supportive of MANE-VUs chosen focus areas for the next planning period.
- Hopeful with good 2011 model/monitor agreement, but skeptical of 2028.

