



MANE-VU Technical Support Committee Update



OTC/MANE-VU Fall Meeting: April 10, 2018

Washington, DC

Overview

1. Action Plan & Schedule Updates
2. Monitoring Data
3. EI Trends Report
4. Consultation/MANE-VU Ask
5. Modeling

Regional Haze SIP 2nd Planning Period - Schedule

IMPROVE Data Analysis	<ul style="list-style-type: none"> • Decisions on Methods • 1st and 2nd Planning Period Calculations, QA, and TSD 	Complete Spring 2018
Inventory Development & Analysis	<ul style="list-style-type: none"> • 2011/2028 Alpha 2 & TSD • Emissions Trends Analysis 	Complete Spring 2018
Modeling	<ul style="list-style-type: none"> • 2011 Base Case Modeling • 2028 Base Case Modeling • 2028 Control Case Modeling • Document Modeling Platform and Results 	Complete May 2018 June 2018 Complete (Except Control Case)
Four-Factor Analysis/Contribution Assessment	<ul style="list-style-type: none"> • Qc/d • CALPUFF Assessment • Back Trajectory & IMPROVE Data Analysis • 4-Factor Data Collection • HEDD Analysis • Winter EGU NOX Control • Synthesize Assessments 	Complete Complete Complete Complete Complete Complete Complete
Updating RPGs	<ul style="list-style-type: none"> • Draft RPGs and Document 	Summer 2018
Consultation	<ul style="list-style-type: none"> • Establish Consultation Process • Intra-RPO Consultation • Inter-RPO Consultation 	Complete Complete (Except Documentation) Complete (Except Documentation)
SIP Submission	<ul style="list-style-type: none"> • SIP Submission • Rule Adoption 	Summer 2018 2018

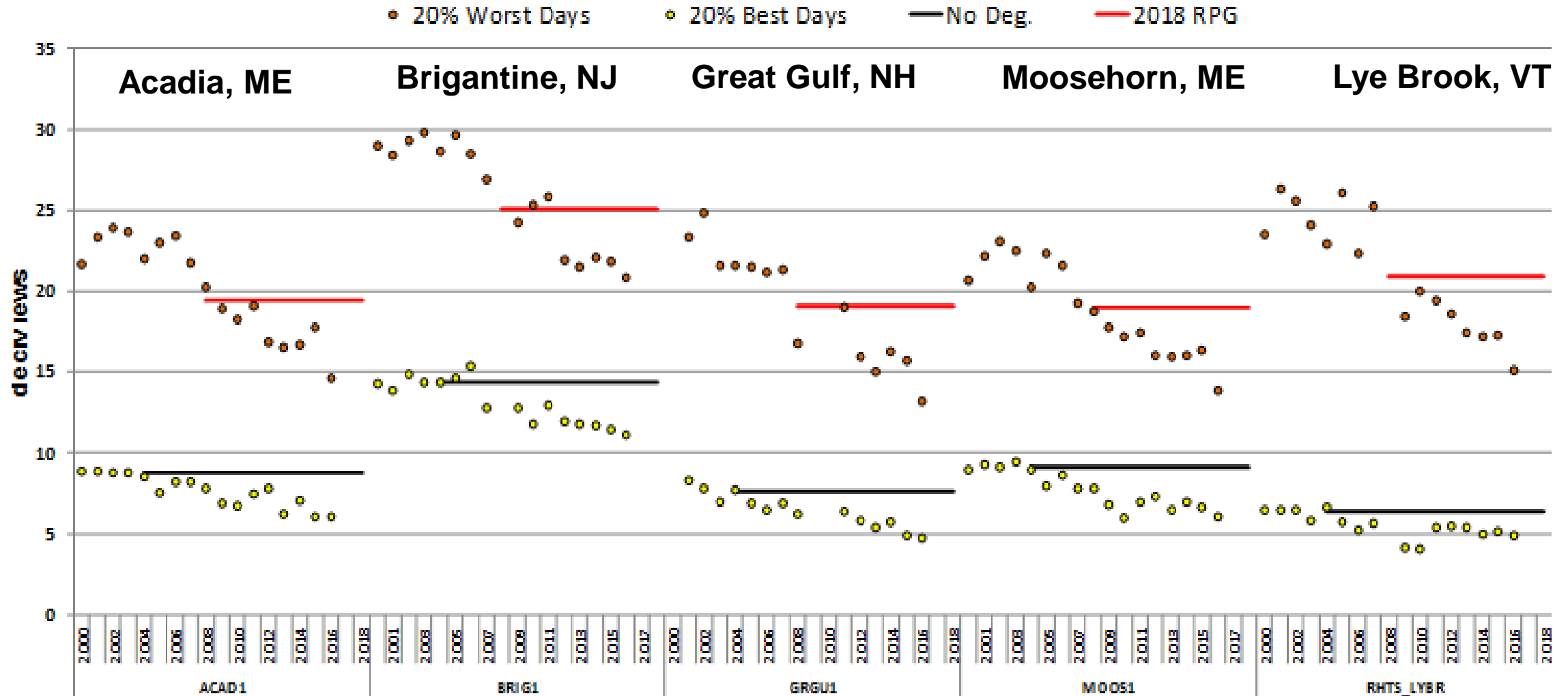
Why Target July 2018 SIP Submittal?

- ▶ In 2016 EPA finalized updated Regional Haze regulations
 - ▶ SIP deadline was extended to 2021
- ▶ Why not wait?
 - ▶ OTC developed a 2011-based SIP quality modeling platform for states in nonattainment of the 2008 ozone NAAQS
 - ▶ MANE-VU Air Directors agreed that 2011 should also be used for regional haze modeling rather than develop an entirely new modeling platform
 - ▶ There is great uncertainty based on EPA's statements as to whether 2011 will be an acceptable base year for SIPs submitted in 2021
 - ▶ State resources and Federal funding issues needed to be considered
 - 50-70% of the work completed was done using Federal money rolled over from first planning period
 - EPA will not be providing additional funding for work
 - States contribute to MANE-VU, but not at a level to redo all of the completed work
 - ▶ EPA's not yet finalized draft guidance called for far more extensive analyses than we think is necessary

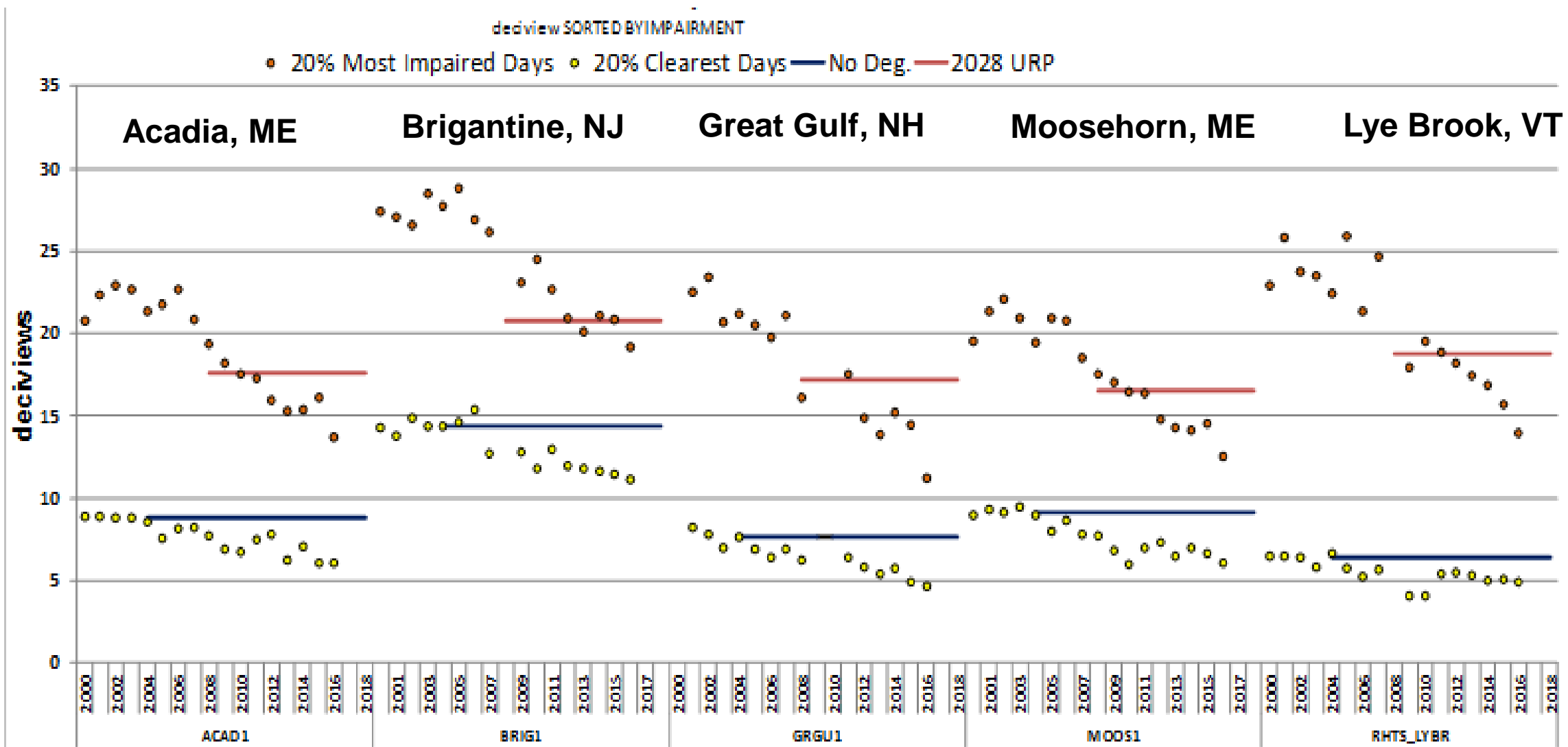
Visibility Report

- ▶ Maine developed reports based on original by NESCAUM examining Visibility Data
 - ▶ RHR III Metric – Required for analyses for 2nd planning period
 - ▶ 1st Planning Period Metric – For later 5-year lookback submissions
- ▶ Status/Next Steps
 - ▶ Under 21 Day EPA/FLM Review
 - ▶ Final IMPROVE RHR III data released last week – one last update needed
 - ▶ Expected Finalization by End of April

Visibility is Improving and Current Levels are Below 2018 RPGs

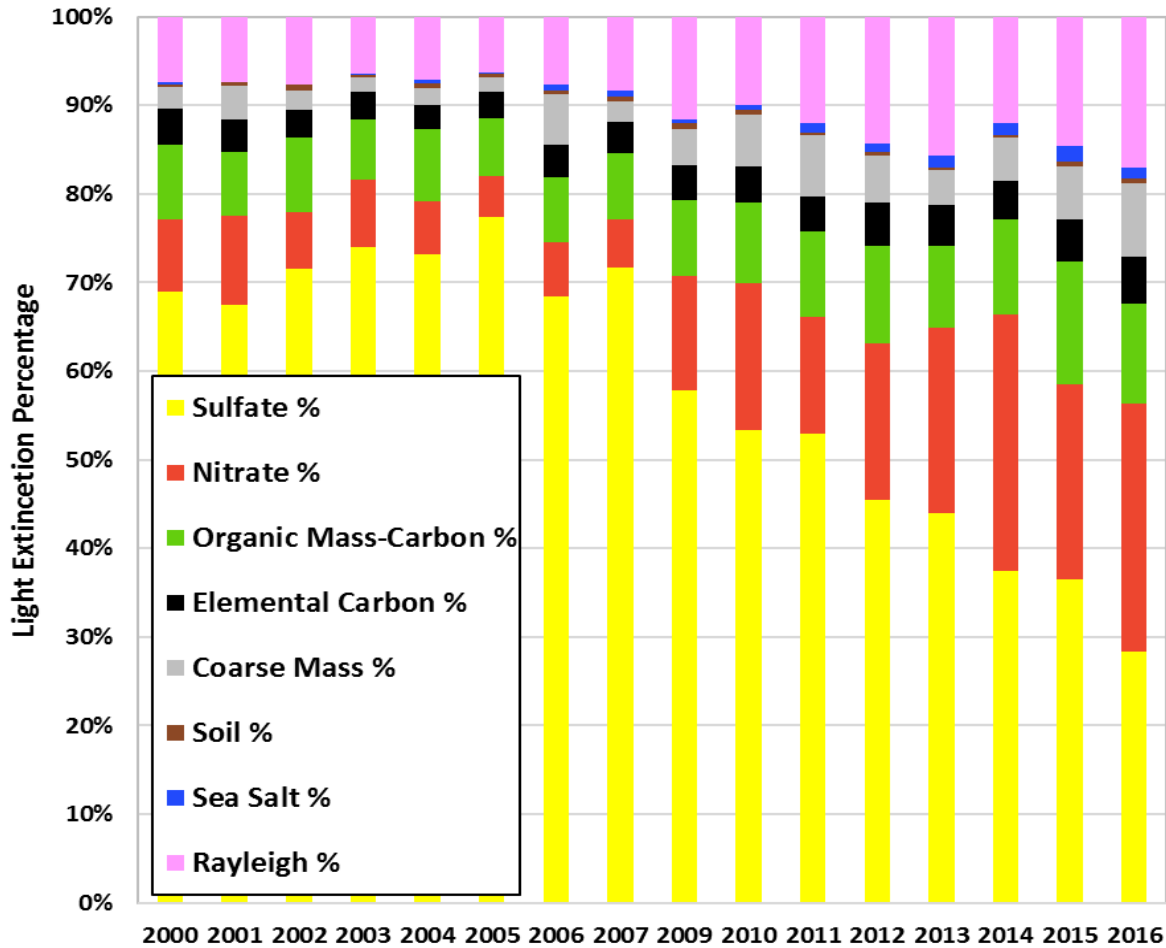


Visibility is Improving and Current Levels are Below 2028 URP

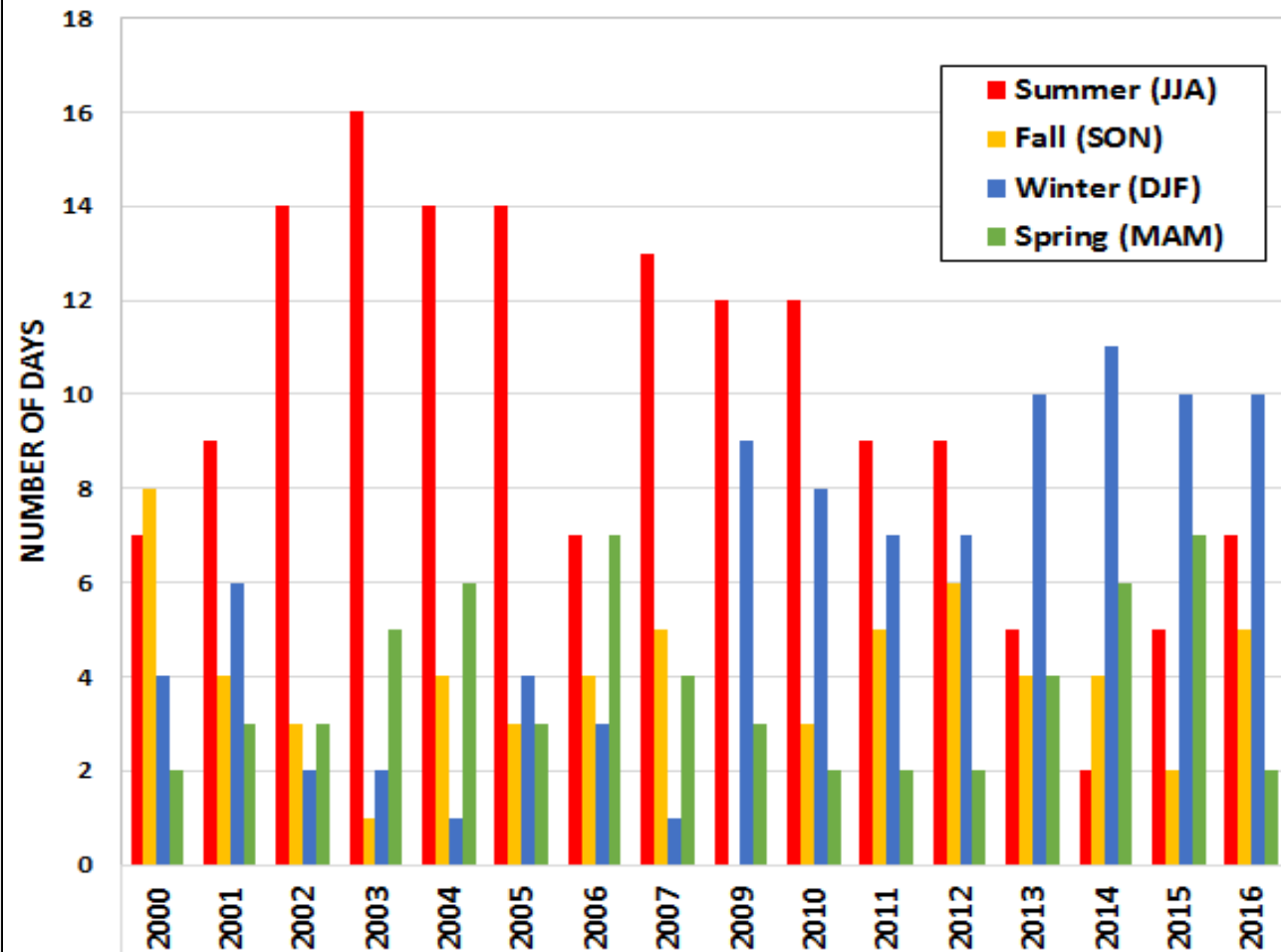


Winter Nitrates Contribution Increasing

Brigantine Wilderness 20% Most Impaired Days



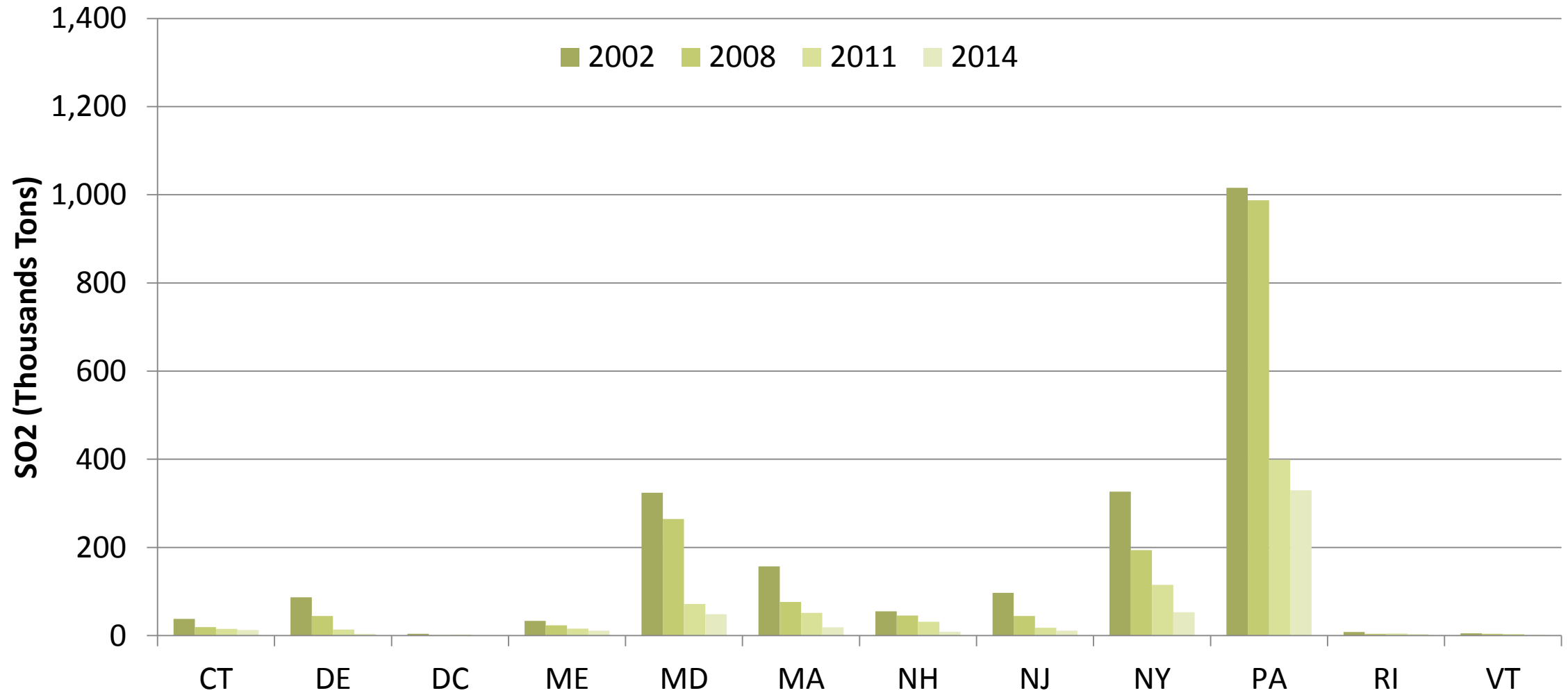
Brigantine Wilderness 20% Most Impaired Days



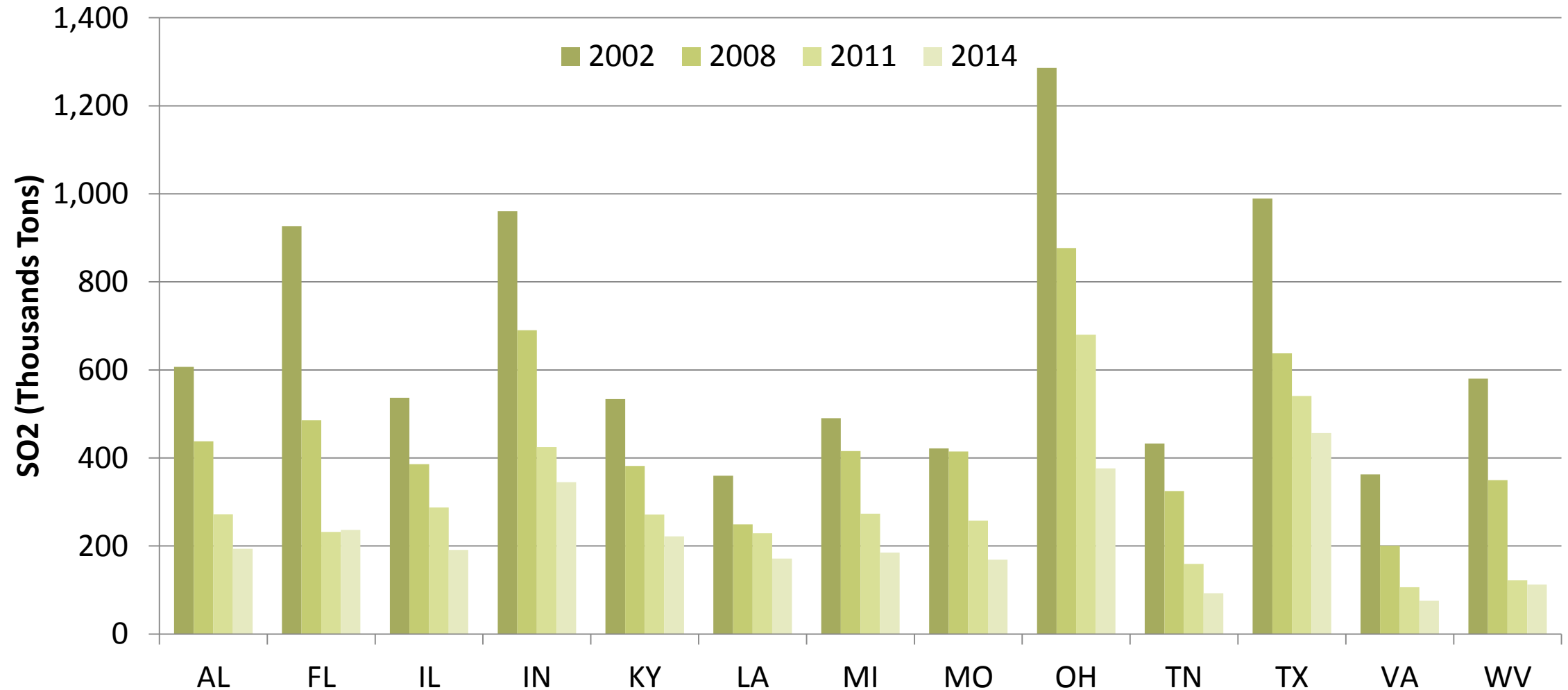
EI Trends Report Template

- ▶ All states required to:
 - ▶ Report on changes in emissions from 2008 to most recently available year
 - ▶ 2014 for NEI
 - ▶ 2017 for CAMD data
 - ▶ Acknowledge the impact of major regulations on inventory changes
- ▶ States are not required to adjust inventories so that they use the same methodologies, just need to document changes in methodologies
- ▶ State staff have developed a template:
 - ▶ New Hampshire and Connecticut analyzed the emissions inventory
 - ▶ New Jersey compiled the list of regulations
- ▶ Will show data for SO₂ and NO_x, but PM_{2.5}, PM₁₀, and VOCs are also available
- ▶ Status/Next Steps
 - ▶ Under 21 Day EPA/FLM Review
 - ▶ Expected Finalization by End of April

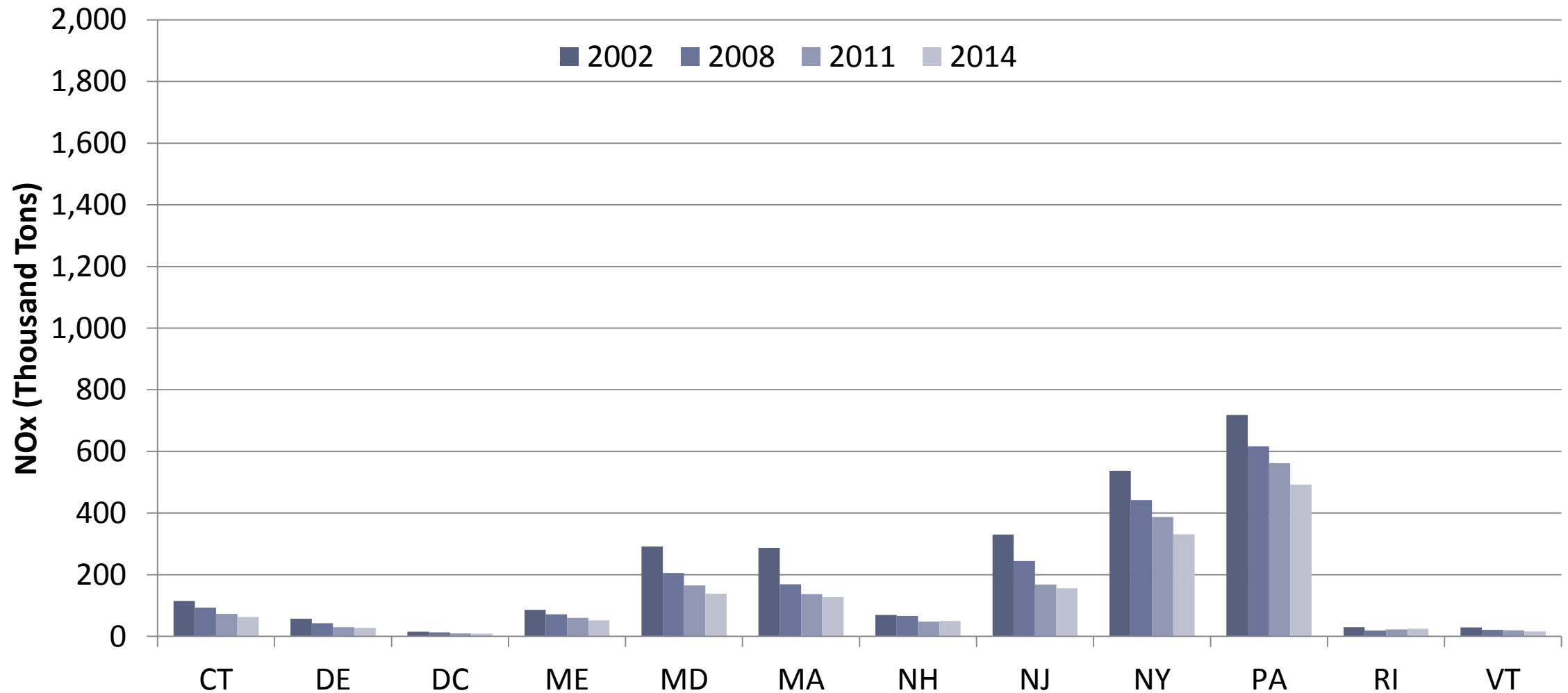
Annual SO₂ Emissions from NEI in the MANE-VU States, 2002-14



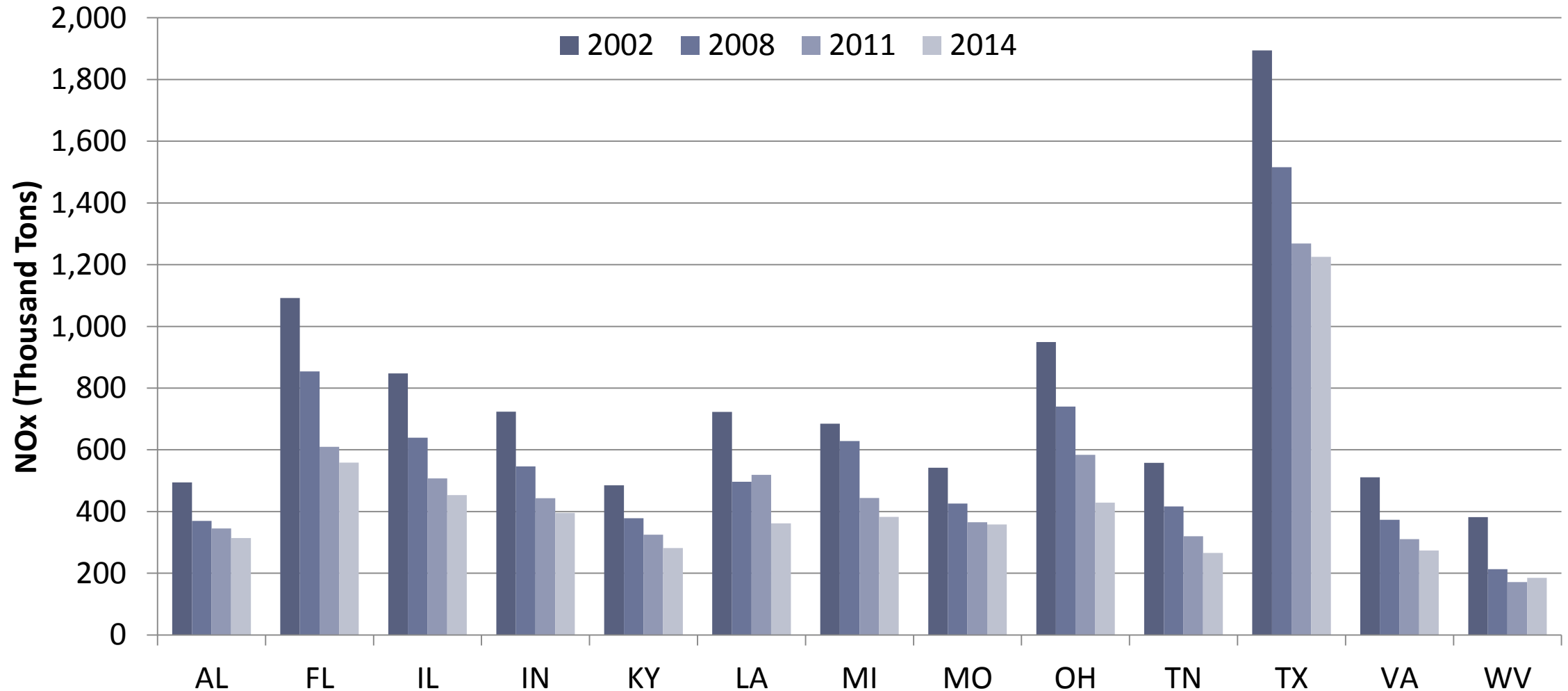
Annual SO₂ Emissions from NEI in the Contributing States, 2002-14



Annual NO_x Emissions from NEI in the MANE-VU States, 2002-14



Annual NO_x Emissions from NEI in the Contributing States, 2002-14



MANE-VU “Ask”

Signed August 25, 2017

MANE-VU States:

- Ensure effective use of installed controls on EGUs (≥ 25 MW) year-round
- 4-factor analysis for most important sources ($> 3\text{Mm}^{-1}$ extinction)
- Complete 2007 low sulfur fuel oil rule
- Update permits and/or rules to reflect already achieved rates for SO_2 , NO_x , and $\text{PM}_{2.5}$
- Strive to meet particular NO_x emissions standards or perform 4-factor analysis on HEDD units
- Increase energy efficiency and implement CHP or other DG

Upwind States:

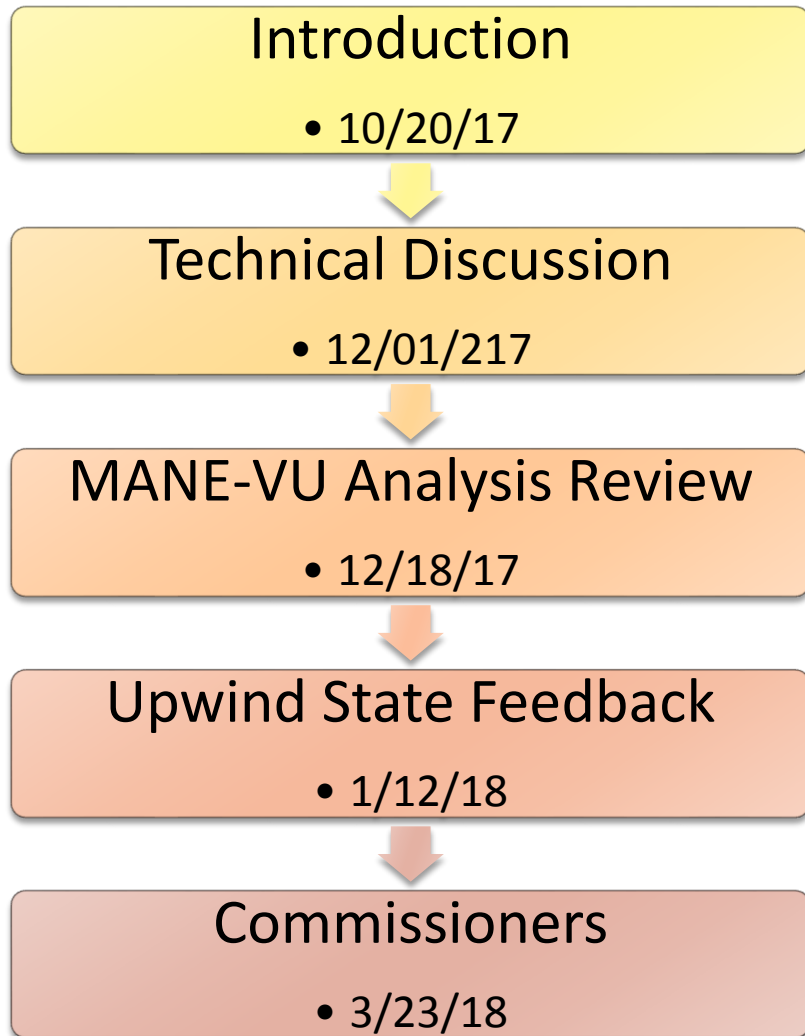
- Ensure effective use of installed controls on EGUs (≥ 25 MW) year-round
- 4-factor analysis for most important sources ($> 3\text{Mm}^{-1}$ extinction)
- Complete 2007 low sulfur fuel oil rule
- Update permits and/or rules to reflect already achieved rates for SO_2 , NO_x , and $\text{PM}_{2.5}$
- Increase energy efficiency and implement CHP or other DG

FLMs/EPA:

- FLMs consult with MANE-VU Class I States when scheduling prescribed burns
- EPA develop measures that will further reduce emissions from heavy-duty onroad vehicles
- EPA ensure that Class I Area state “Asks” are addressed in “contributing” state SIPs prior to approval

▶ Including the Ask in photochemical modeling underway

MANE-VU Inter-RPO Consultation



- ▶ Between MANE-VU and contributing states, as identified using weighted contribution analysis
 - ▶ Five Webinars between 10/20/17 and 3/23/18
- ▶ Consultation Report
 - ▶ Draft expected by April TSC Call
- ▶ Report Outline
 - ▶ Introduction
 - ▶ Regional consultation and the MANE-VU Ask
 - ▶ Requirements and how they were met
 - ▶ Ask development
 - ▶ Summarize how consensus was reached within MANE-VU
 - ▶ Summarize development of upwind states and federal agency Ask
 - ▶ Overview of comments from upwind states with MANE-VU responses.
 - ▶ Appendices
 - ▶ Complete Schedule
 - ▶ Full meeting notes/minutes
 - ▶ Full comments and responses section

Haze Modeling: Two Cases

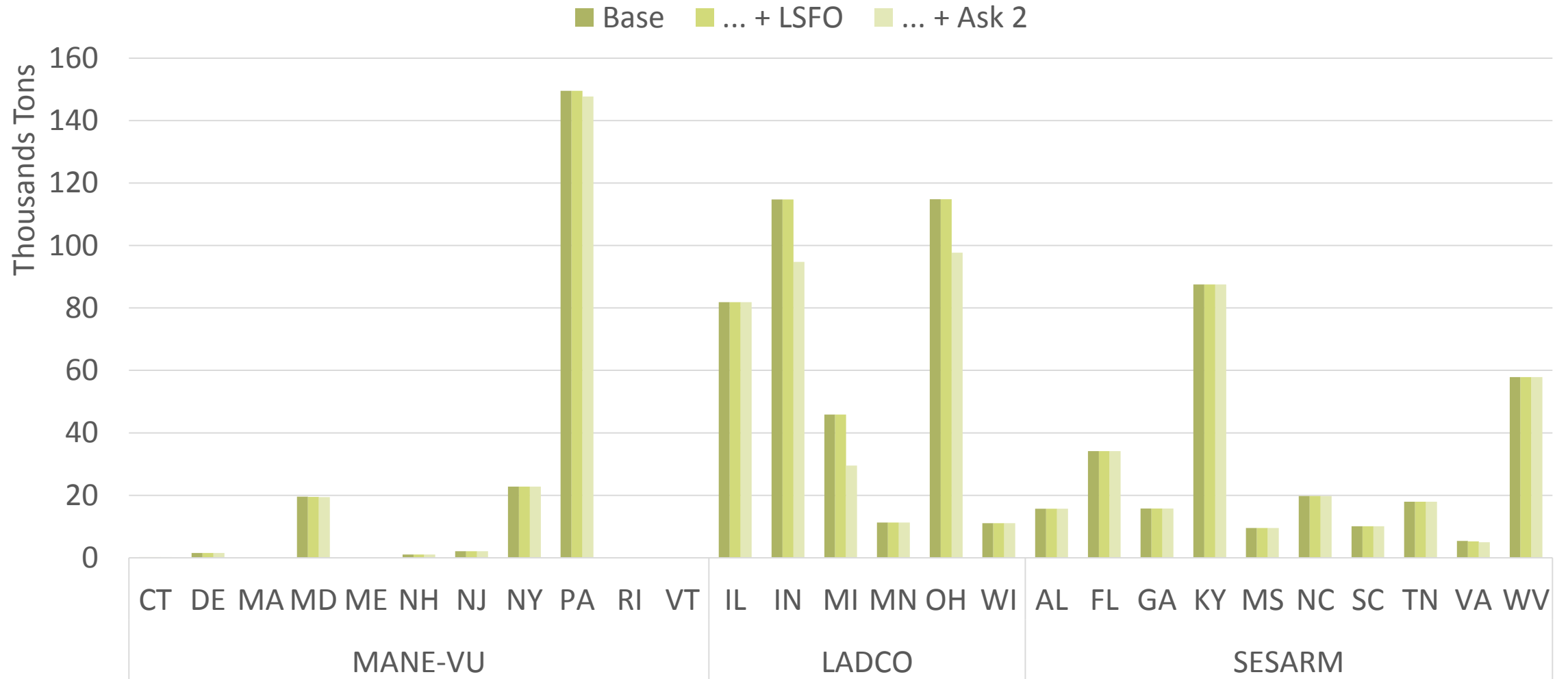
“Gamma” Base Case

- ✓ ERTAC v2.7
- ✓ 2028 Alpha 2: Small EGUs
- ✓ EPA 2028 “e1”:
Remaining Sectors
- ✓ HEDD Unit
Temporalization

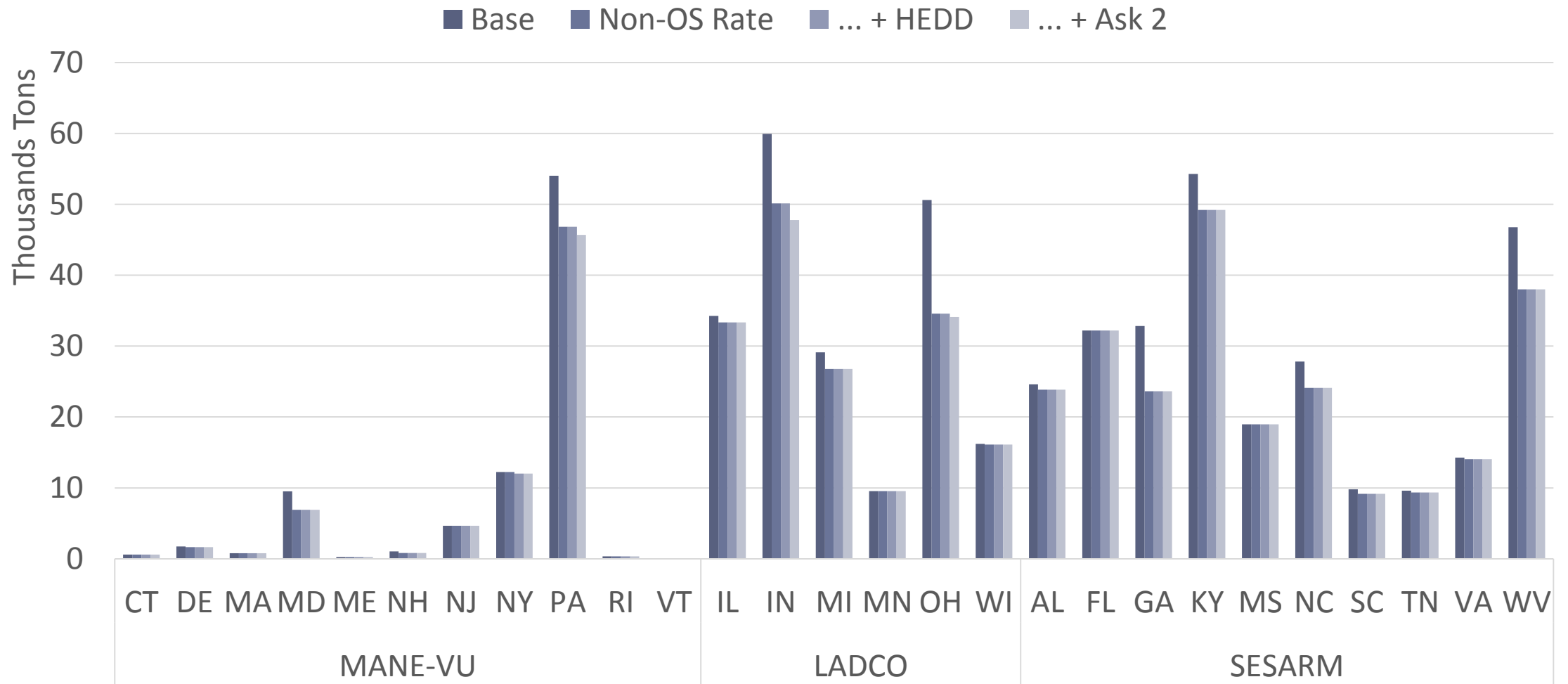
Control Case

- ✓ ERTAC Control Case
 - Asks 1, 2, 3, 5
 - EMF for Point Control Case
 - Asks 2, 3, 5
- ✓ MOVES Percentage Reduction
 - EPA Ask

Changes in Annual ERTAC SO₂ Emissions When Implementing the MV Ask



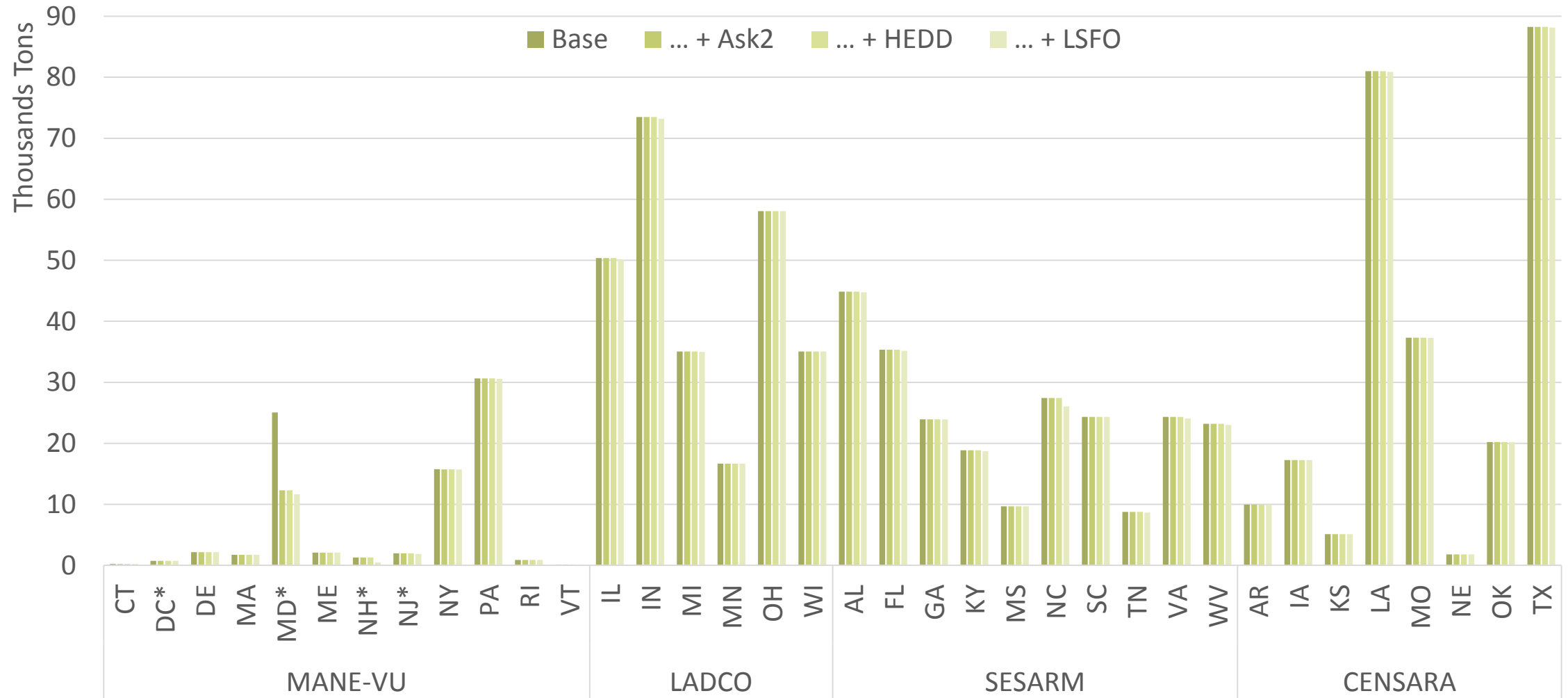
Changes in Annual ERTAC NO_x Emissions When Implementing the MV Ask



In Retrospective: Low Sulfur Fuel Rule (as of 9/2016)

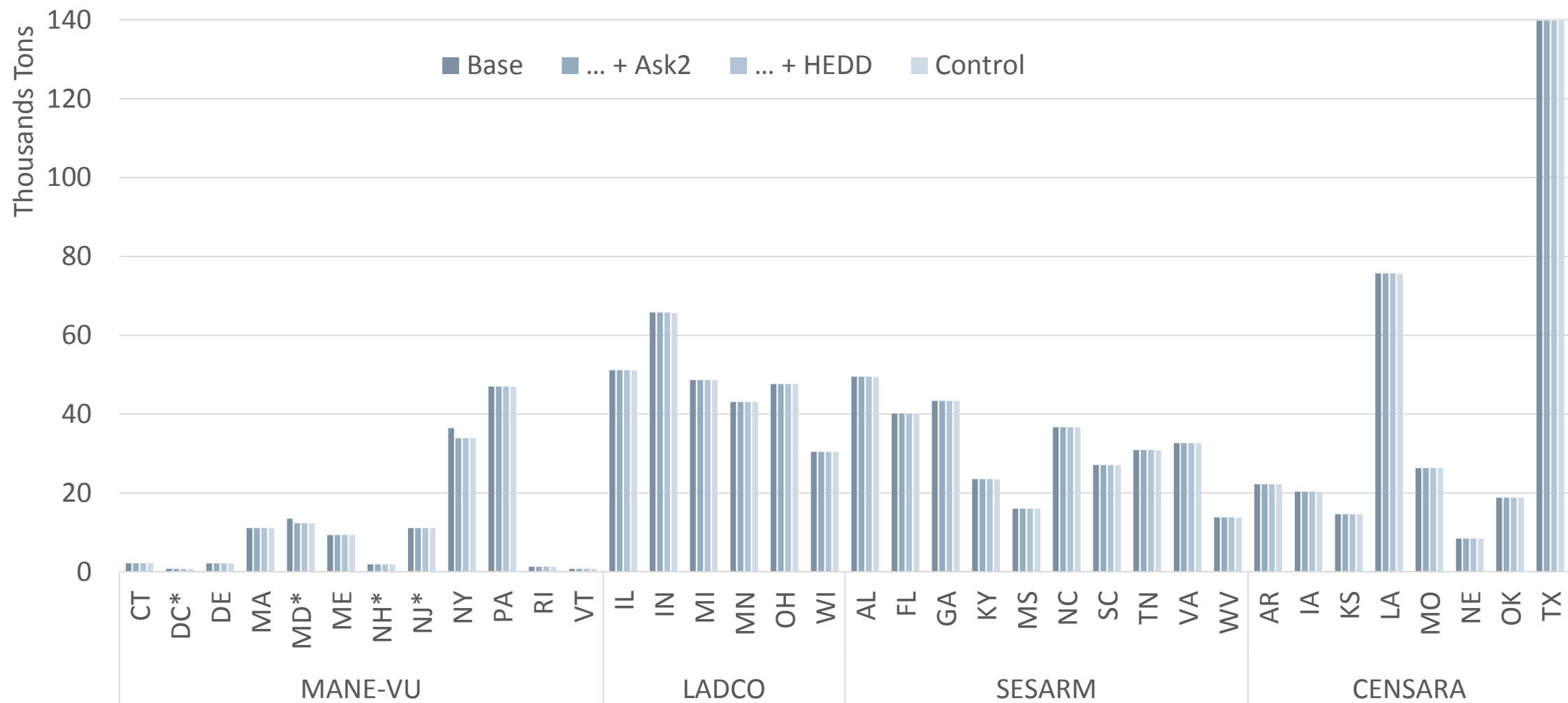
Low Sulfur Distillate Rules/Statutes (ppm)												
	CT	DC	DE	MA	MD	ME	NJ	NH	NY	PA	RI	VT
500	2014	2016		7/14	2016		2014			7/16	2014	7/14
15	2018	2018	2017	7/18		7/18	2016	7/18	7/16	Philly: 7/15	2016	7/18
Low Sulfur Residual Rules/Statutes (percentage)												
1.00				7/14								
0.50			7/17	7/14 (EGUs), 7/18		7/18	2014 (depends on county)	7/18 (#5/#6)	7/16	7/16 (#5/#6)	date?	7/18 (#5/#6)
0.30	7/18						2014 (depends on county)		7/16 NYC - 0.3% Nassau / Westchester -0.37%			
0.25								7/18 (#4)		7/16 (#4)		7/18 (#4)
Ban		2016 (#5/#6)							NYC #6 Ban 7/15 #4 0.15% 10/12 Ban 2030			

Changes in Annual EMF Point SO₂ Emissions When Implementing the MV Ask



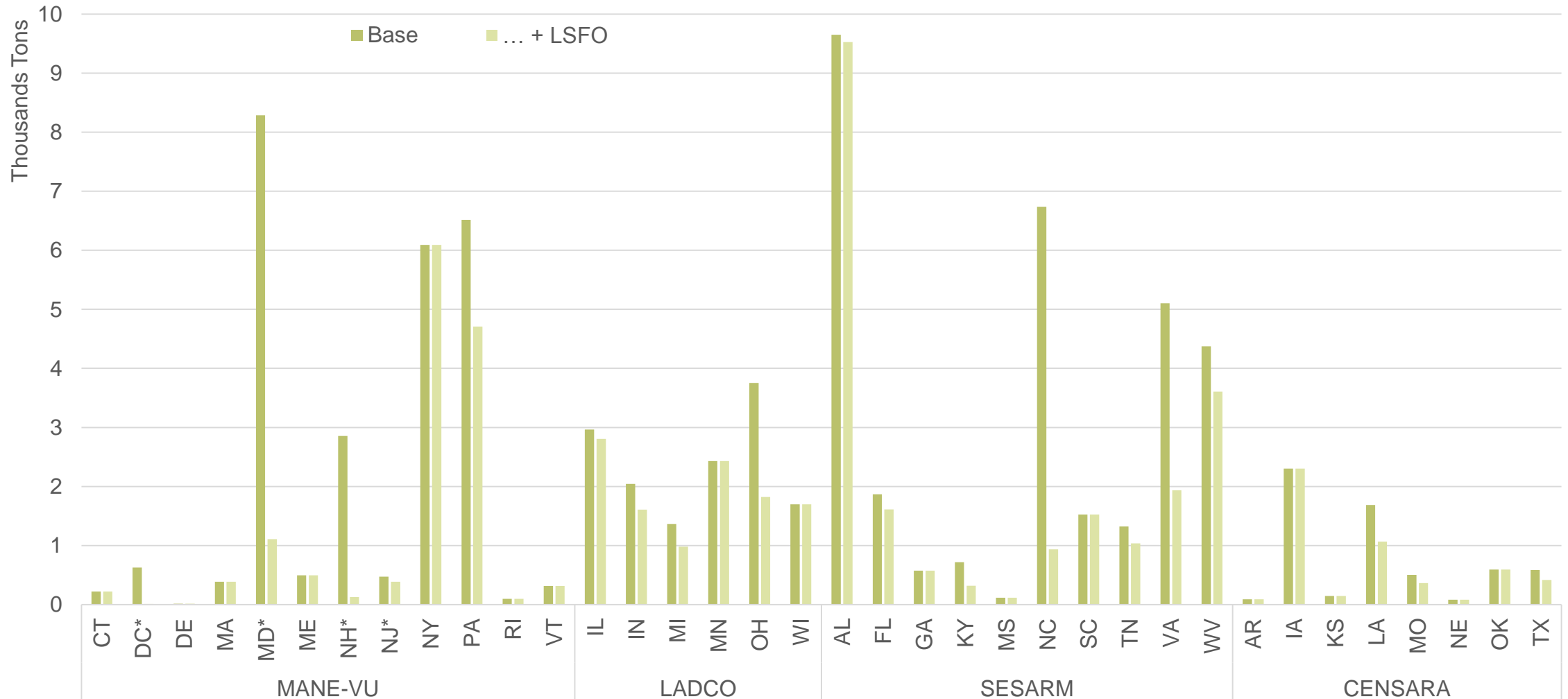
* Note: Several States in MANE-VU have implement some or all of the LSFO rule, but do not include it in their FY projections

Changes in Annual EMF Point NO_x Emissions When Implementing the MV Ask



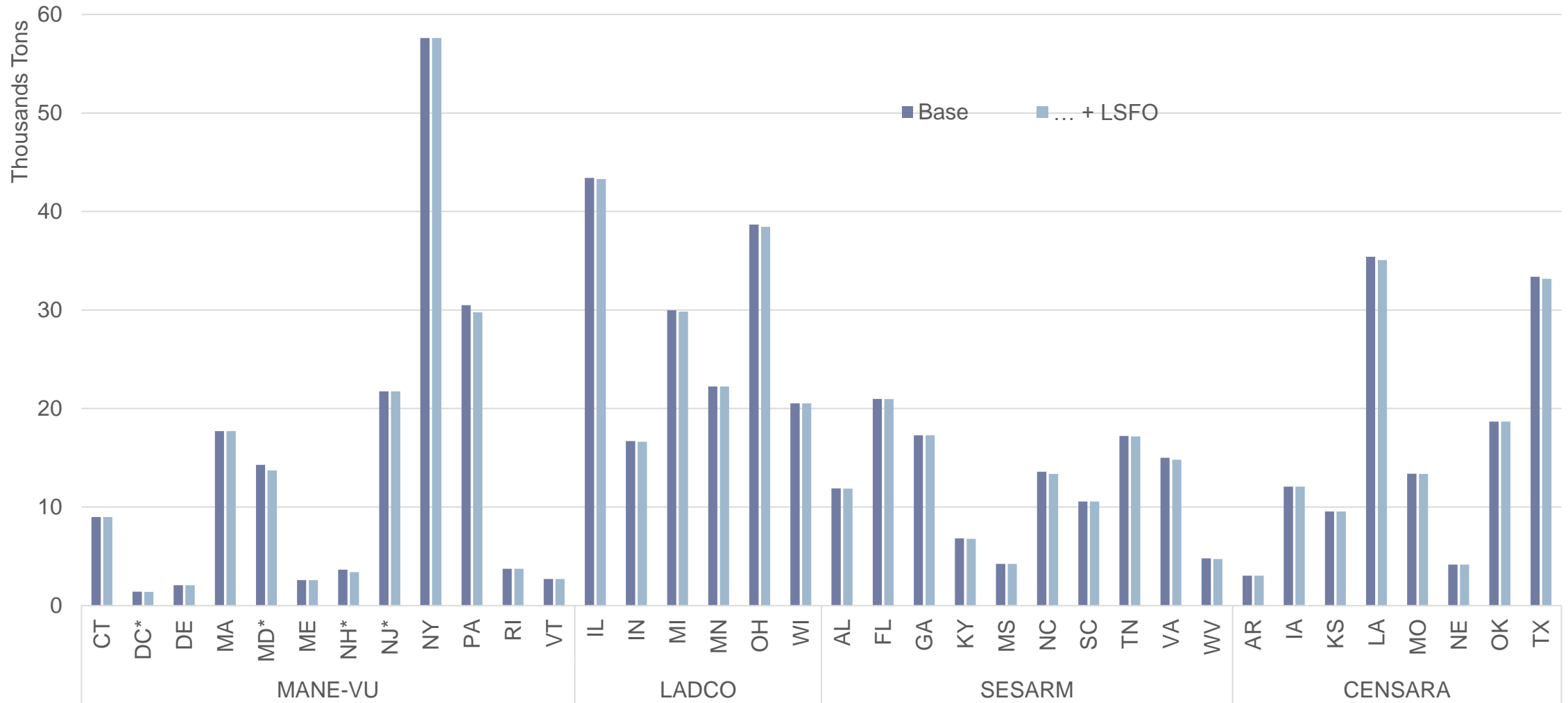
* Note: Several States in MANE-VU have implemented some or all of the LSFO rule, but do not include it in their FY projections

Changes in Annual EMF NonPoint SO₂ Emissions When Implementing the MV Ask



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Changes in Annual EMF NonPoint NO_x Emissions When Implementing the MV Ask



* Note: Several States in MANE-VU have implement some or all of the LSFO rule, but do not include it in their FY projections

In Summary

- ▶ Nearing completion of 2nd Planning Period Regional Haze SIP work
- ▶ Have documented visibility and inventory trends and near finalization
- ▶ The “ask” is final for the 2nd Planning Period
- ▶ Both Intra- and Inter-RPO consultation is complete, except documentation
- ▶ Inventory development for base case and control case modeling is nearly complete