MANE-VU Technical Support Committee Update

OTC/MANE-VU Committee Meeting: September 24, 2014
Hall of the States, Washington, DC

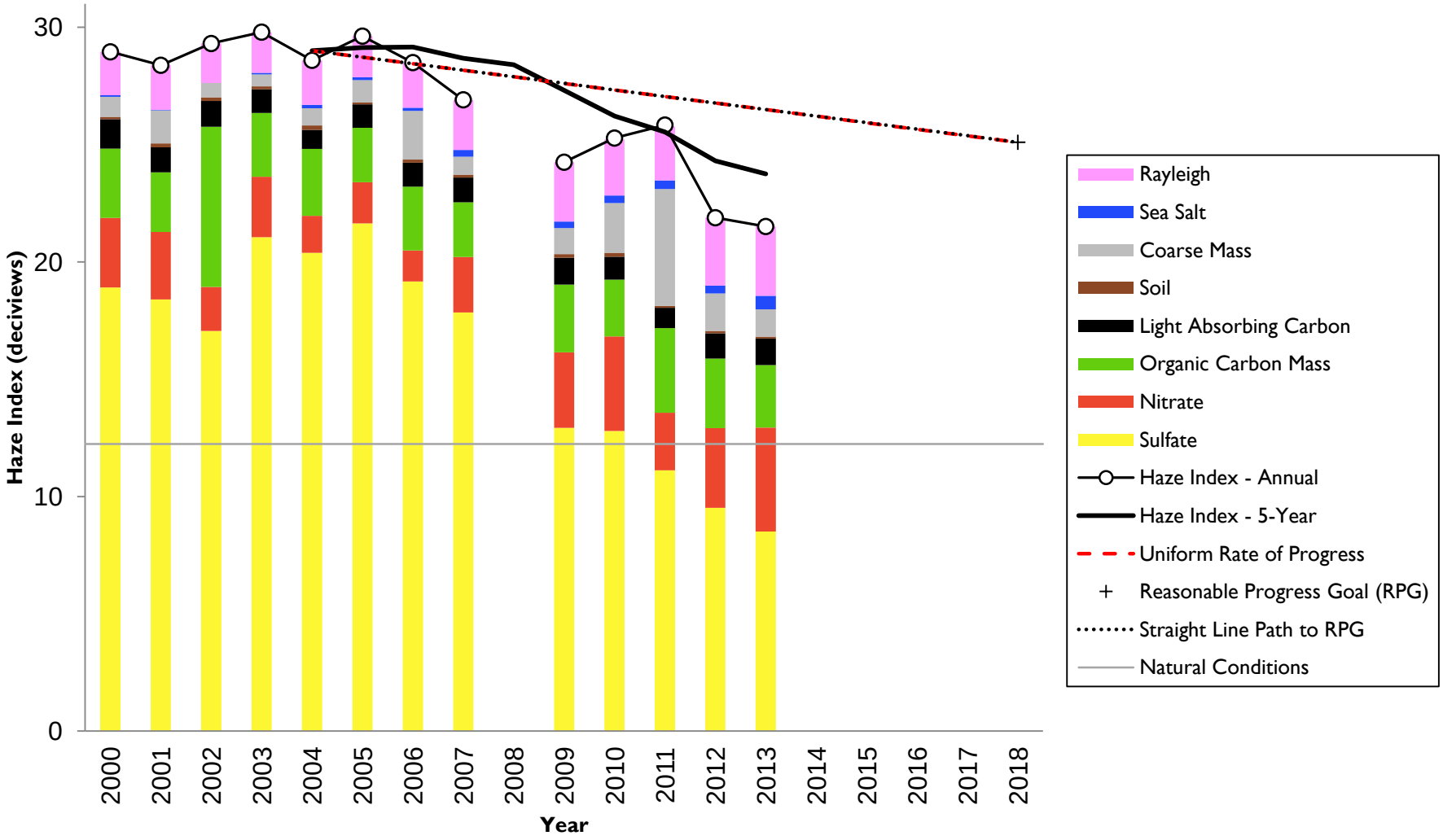
Overview

1. Regional Haze SIP Planning Schedule
2. Updated Visibility Trends
3. CHP Workgroup

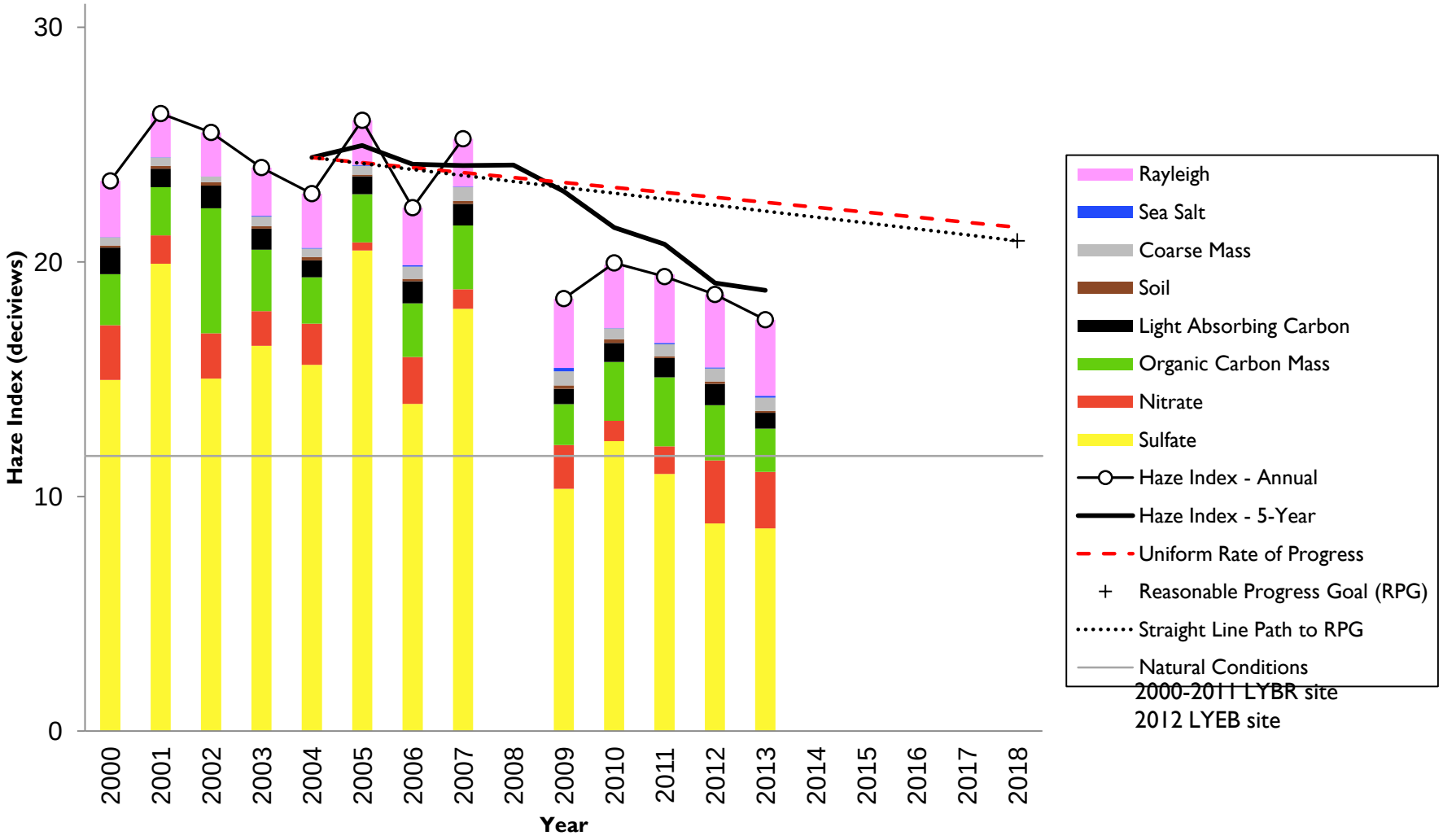
Regional Haze SIP Planning Schedule

Regional Activity	Steps	Timeframe
Training	Training	April 2015
IMPROVE Data Analysis	Decisions on Methods	Complete
	2014 Data Availability	July 2015
	Calculations and QA	Fall of 2015
Inventory Development	2028 ERTAC EGU	December 2014
	2011 EPA Modeling Inventory	December 2014
	2018 EMF MARAMA Proj.	Jan. 2015
	2028 Projections of 2018	June 2015
Photo Chemical Modeling	2011 Met Modeling	Complete
	2011 Base Case Modeling	Spring 2015
	2018 Base Case Modeling	Spring 2015
	2028 Base Case Modeling	Summer 2015
	2028 Source Apportionment	Fall 2015
	2028 Control Modeling	Fall 2015
Strategy Development	List of strategies with reductions	Summer 2015-End of 2015
RPGS/4 Factor Analysis		
Consultation		

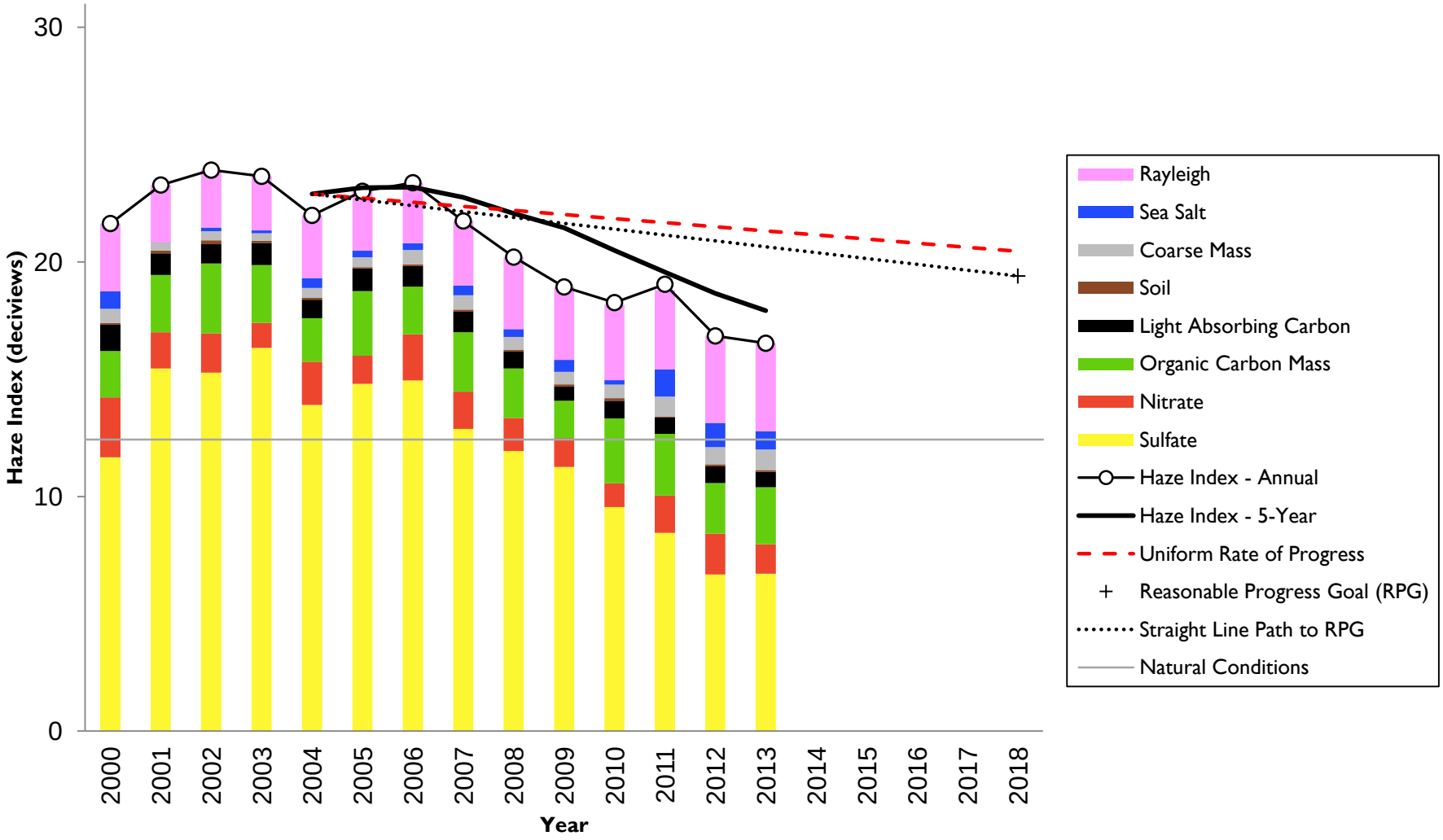
Visibility Trends in Brigantine, NJ (Worst 10%)



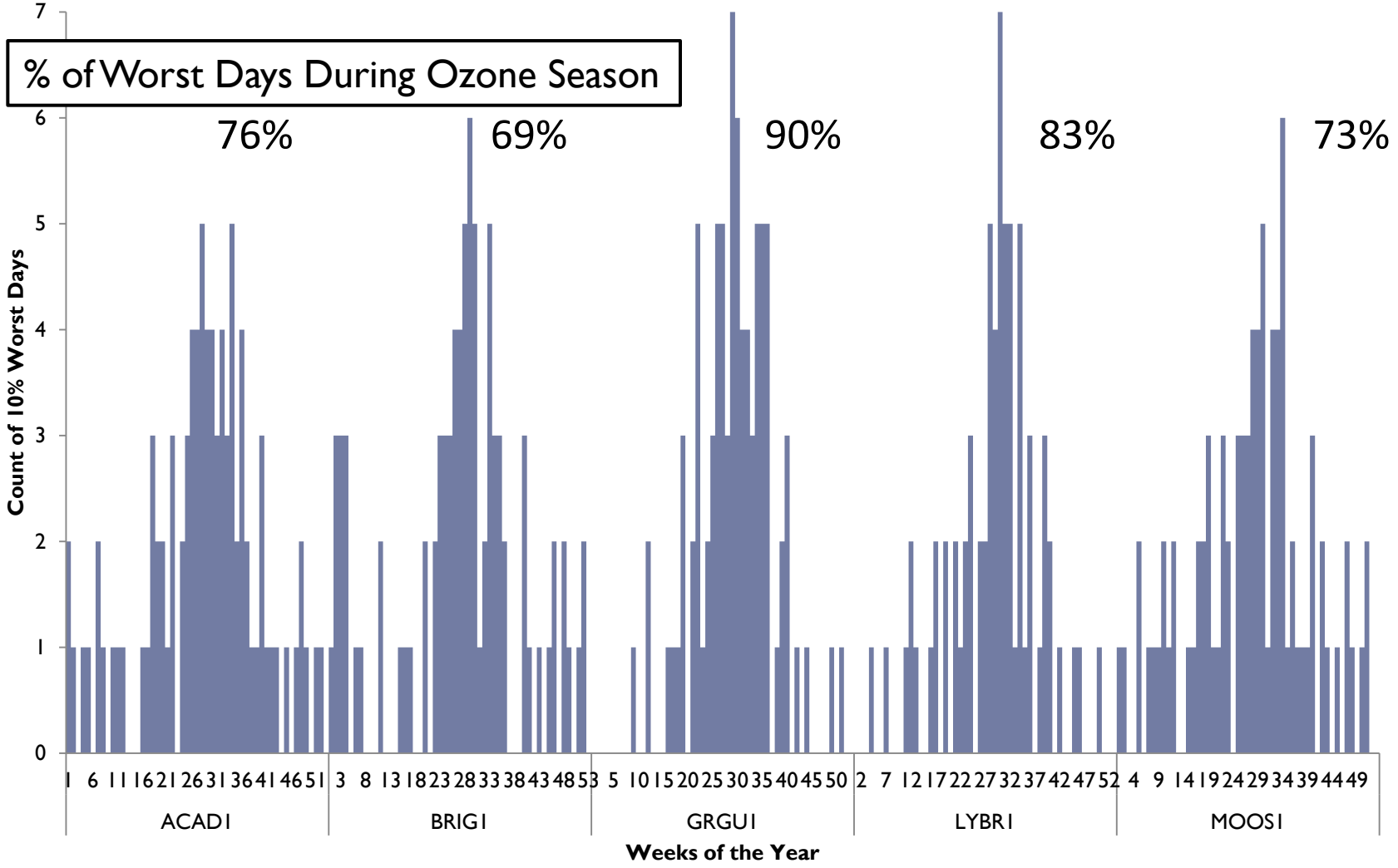
Visibility Trends in Lye Brook, VT (Worst 10%)



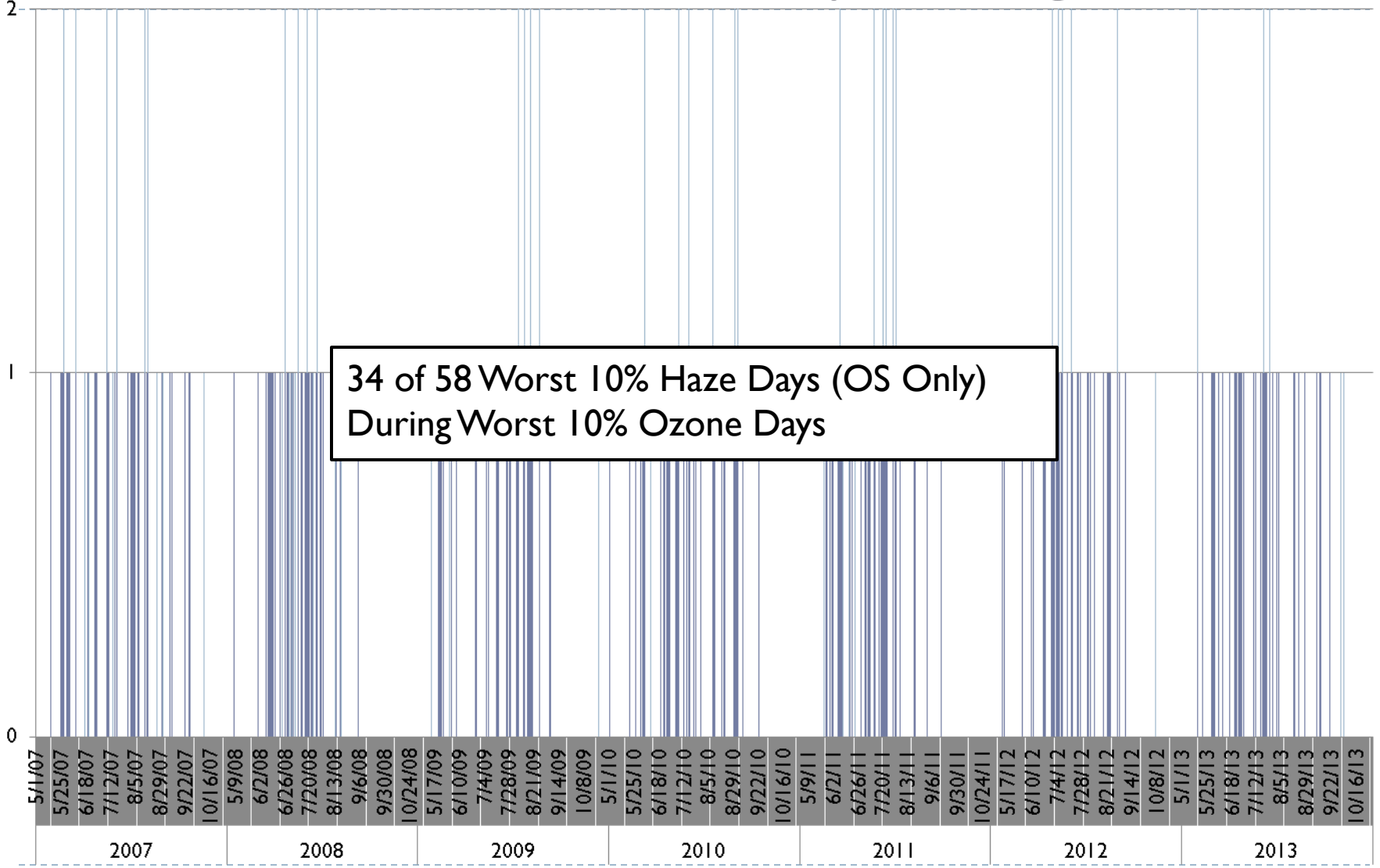
Visibility Trends in Acadia NP, ME (Worst 10%)



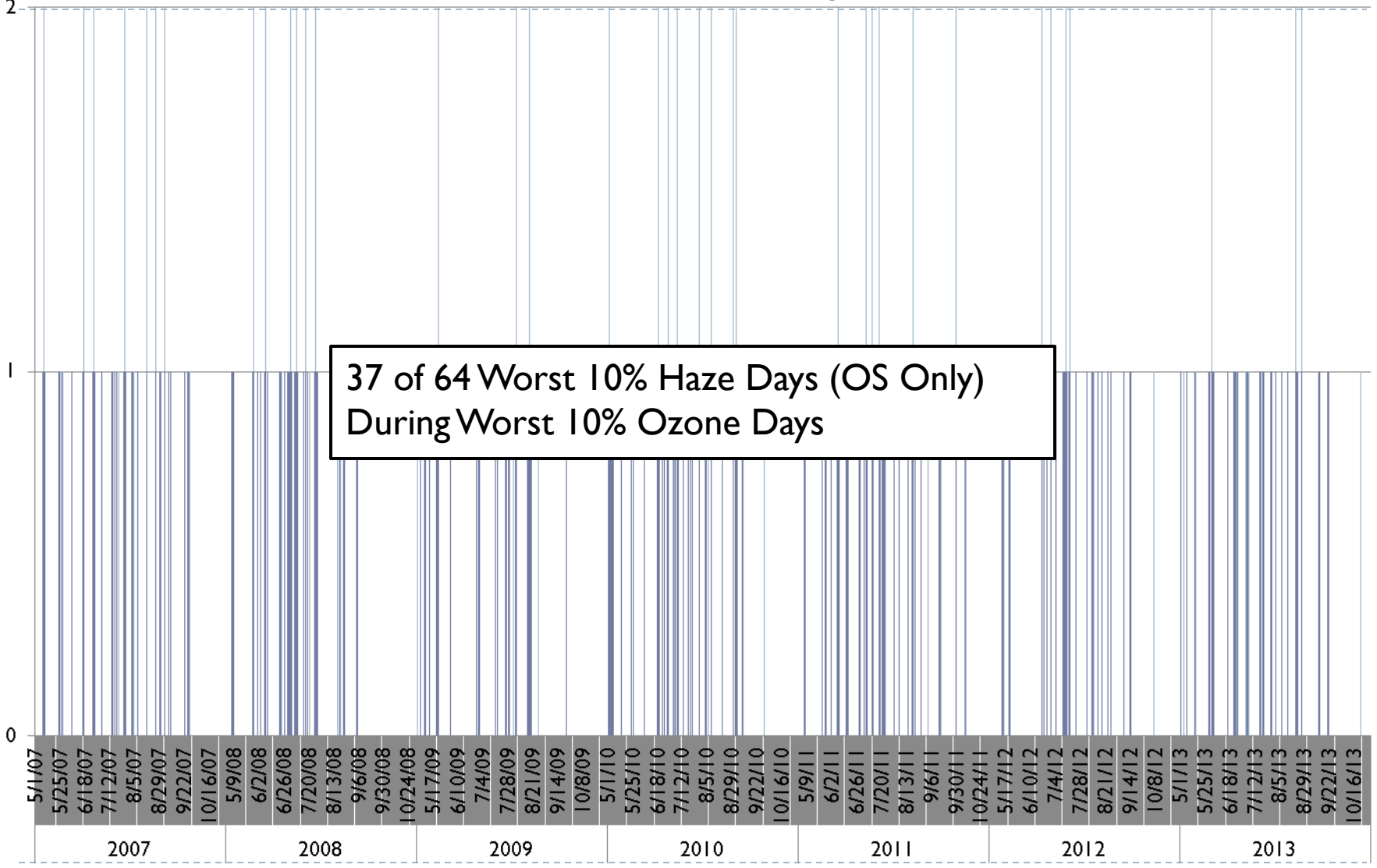
Annual Distribution of 10% DV Worst Days



Correlation Between Worst 10% Ozone and Worst 10% Haze Days, Brigantine



Correlation Between Worst 10% Ozone and Worst 10% Haze Days, Acadia



CHP Workgroup

- Accepting comments until October 8, 2014
- CHP, or cogeneration, is are systems that produce both heat and electricity
- Efficiencies:
  - Typical separated system: 45%
  - CHP: 80%
- Installations can increase local emissions of NO_X and SO_X, but do lead to reductions offsite through decreased electricity production
- Transmission losses are also decreased since electricity is now produced closer to user

Existing/Technical CHP Potential in MANE-VU

State	Existing (MW)	Tech. Potential (MW)	State	Existing (MW)	Tech. Potential (MW)
CT	736	1,673	NH	90	340
DC	11	2,399	NJ	3,447	5,989
DE	173	642	NY	5,070	8,500
ME	1,196	-	PA	3,301	10,923
MD	828	2,634	RI	103	-
MA	375	4,751	VT	15	533
Total				**15,345**	**38,384**

Methodology: Onsite

- Assumed all technical potential would be replaced with CHP
- Estimated distribution of unit sizes for each state's technical potential
- Calculated emission increases due to replacements
- Emission Rates Used:
  - SO_X: NY CHP Study
  - NO_X:

Unit Size	DE	NJ	Other States	
			Case 1	Case 2
<5 MW	State Reg.	State Reg.	RICE NESHAP	OTC Stationary Generator M.R.
5 - 20 MW	Average of 1. OTC Additional NO_X Control Measures M.R. 2. Combustion Turbine NSPS			
> 20 MW	Combustion Turbine NSPS			

Methodology: Offsite

- Used EPA CHP Emissions Calculator
- Assumptions:
  - Systems would replace generation in the NERC regions:
    - New England for CT, MA, NH, and VT
    - New York Upstate for NY
    - Reliability First Corporation East for DC, DE, MD, NJ, and PA
  - Displaced fuel would be 2009 eGrid average fossil fuel
  - Transmission loss would be average in the Eastern Interconnection
  - CHP systems would only operate when needed for heating based on average heating degree days for the state
  - CHP systems would not be down during heating season

Emission Benefits of CHP Installations in MANE-VU

- We have estimates of onsite emission disbenefits in MANE-VU
  - NO_X
    Case 1: 135,000 tons, Case 2: 44,000 tons
  - SO_X 350 tons
- Need to rethink offsite emission reduction benefits
  - We had assumed reductions would occur in NERC region the state was in, but CHP technical potential is larger than existing EGU generation in some of the regions
  - Questions
    - Should we assume they come from coal or natural gas, and in what proportion?
    - Should we assume they occur throughout MANE-VU, in states with coal plants (PA, NY, MD), or that will come from PJM writ large?
    - Should we use ERTAC to model the changes?

Questions?