

# Protecting and Improving Air Quality in the Northeast and Mid-Atlantic

OTC/MANE-VU Fall Meeting

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## Projected Health Effects of EGU Emissions in Eastern U.S. in 2015

Health Effect	Total	SO <sub>2</sub> Alone	NO <sub>x</sub> Alone
Chronic Bronchitis	16,600	15,700	800
Acute Myocardial Infarction	42,200	40,100	2,100
Hospital Admissions, Respiratory	5,900	5,600	300
Hospital Admissions, Cardiovascular	12,400	11,800	600
Emergency Room Visits, Respiratory	20,400	19,400	1,000
Acute Bronchitis	39,800	37,800	2,000
Work Loss Days	3,182,100	3,023,000	159,100
Asthma Exacerbation	439,900	418,000	22,000
Acute Respiratory Symptoms	18,682,800	17,748,700	934,100
Lower Respiratory Symptoms	476,100	452,300	23,800
Upper Respiratory Symptoms	361,000	343,000	18,000
Infant Mortality	96	92	5
Adult Premature Mortality (Laden <i>et al.</i> , 2006)	60,900	57,800	3,000
Adult Premature Mortality (Pope <i>et al.</i> , 2002)	23,900	22,700	1,200

## Projected Economic Value of Damages to Health in 2015

Health Effect	Economic Value of Damages to Health		
	<i>(millions of 2006\$)</i>		
	Total	SO <sub>2</sub> Alone	NO <sub>x</sub> alone
Chronic Bronchitis	\$8,196	\$7,787	\$410
Acute Myocardial Infarction	\$4,580	\$4,351	\$229
Hospital Admissions, Respiratory	\$82	\$78	\$4.1
Hospital Admissions, Cardiovascular	\$350	\$332	\$17
Emergency Room Visits, Respiratory	\$7	\$7.1	\$0.4
Acute Bronchitis	\$3	\$2.7	\$0.1
Work Loss Days	\$392	\$372	\$20
Asthma Exacerbation	\$23	\$22	\$1.2
Acute Respiratory Symptoms	\$1,109	\$1,053	\$55
Lower Respiratory Symptoms	\$9	\$8.2	\$0.4
Upper Respiratory Symptoms	\$10	\$9.8	\$0.5
Infant Mortality	\$838	\$796	\$42
Adult Premature Mortality (Laden et al. 2006)	\$488,162	\$463,756	\$24,407
Adult Premature Mortality (Pope et al., 2002)	\$191,650	\$182,068	\$9,582
Total Damages (with Laden et al. 2006)	\$503,761	\$478,575	\$25,187
Total Damages (with Pope et al. 2002)	\$207,249	\$196,887	\$10,362

## EPA's Projected Benefits per Ton of EGU Emissions Reductions in 2015

<b>Metro Areas</b>	<b>SO<sub>2</sub></b> (2006\$)	<b>NO<sub>x</sub></b> (2006\$)
Atlanta	\$17,000	\$9,000
Chicago	\$20,000	\$1,300
Dallas	NA	\$39,000
New York to Philadelphia	\$85,000	\$1,700
All other portions of US	\$94,000	\$17,000

## Estimated Annual Number of Adverse Health Effects Avoided If Protective 11 $\mu\text{m}^3$ annual and 25 $\mu\text{m}^3$ daily $\text{PM}_{2.5}$ Standards are Adopted

Health Effect	Cases Avoided
Premature death	35,700
Acute bronchitis	29,800
Heart attacks	2,350
Asthma attacks	1,400,000
Hospital and emergency room visits	23,290
Missed work or school days	2,700,000

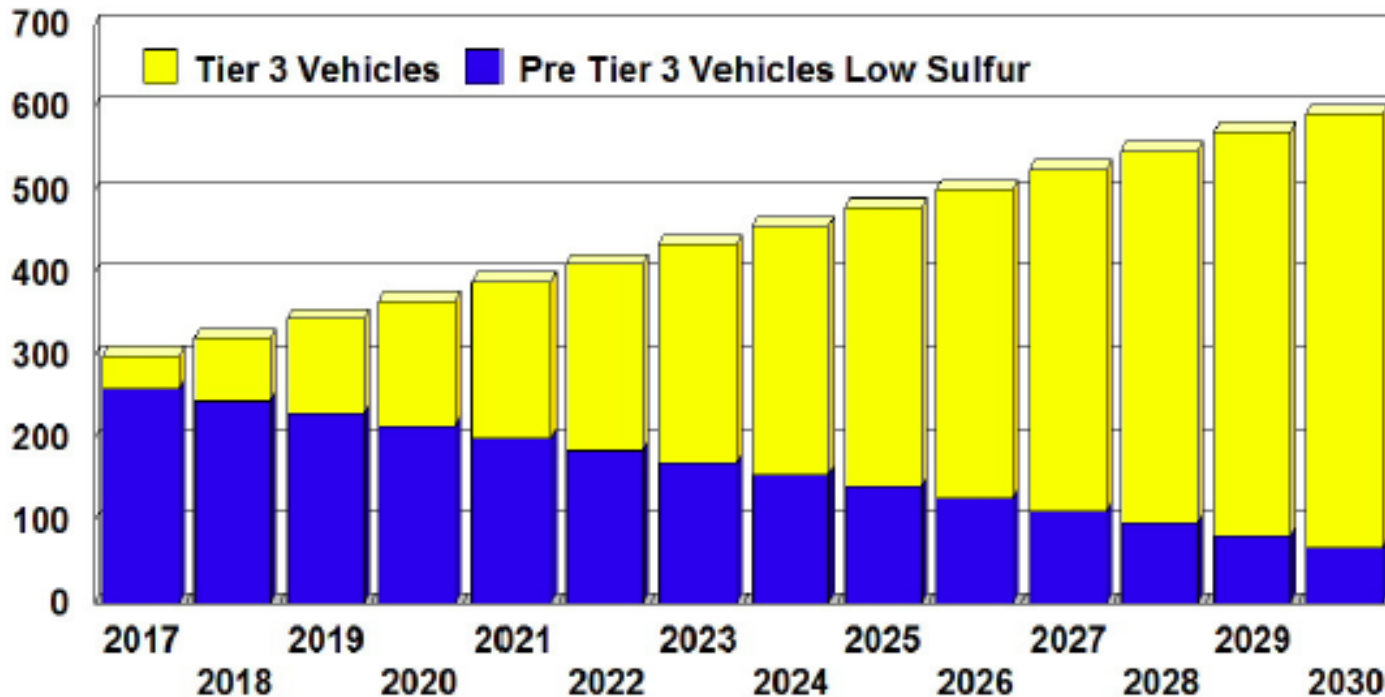
## Metropolitan Areas That Will Benefit Most From the Protective Standards in Annual Premature Deaths Avoided

RANK	METROPOLITAN AREA	AVOIDED PREMATURE DEATHS, ANNUALLY
1	Los Angeles-Long Beach-Santa Ana, CA	4,230
2	New York-Newark-Edison, NY-NJ-PA	3,290
3	Chicago-Naperville-Joliet, IL-IN-WI	2,240
4	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	1,550
5	Riverside-San Bernardino-Ontario, CA	1,360
6	Pittsburgh, PA	1,270
7	Detroit-Warren-Livonia, MI	970
8	Atlanta-Sandy Springs-Marietta, GA	930
9	Cleveland-Elyria-Mentor, OH	780
10	Cincinnati-Middletown, OH-KY-IN	650

Source: "Sick of Soot," 2011. <http://earthjustice.org/documents/report/pdf/sick-of-soot-how-the-epa-can-save-lives-by-cleaning-up-fine-particle-pollution>

# Emissions Reduction Benefits From Tier 3 Vehicle and Fuels Requirements

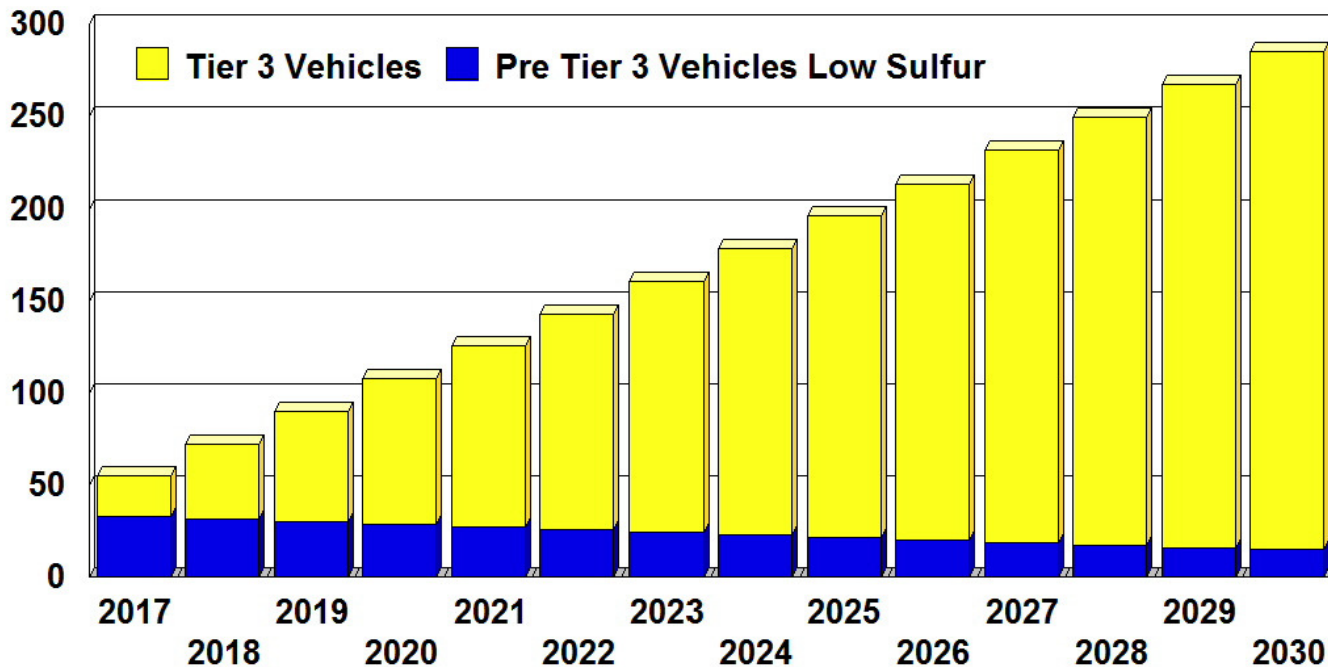
Tons Reduced (NO<sub>x</sub>)  
Thousands



Source: MP Walsh (2011).

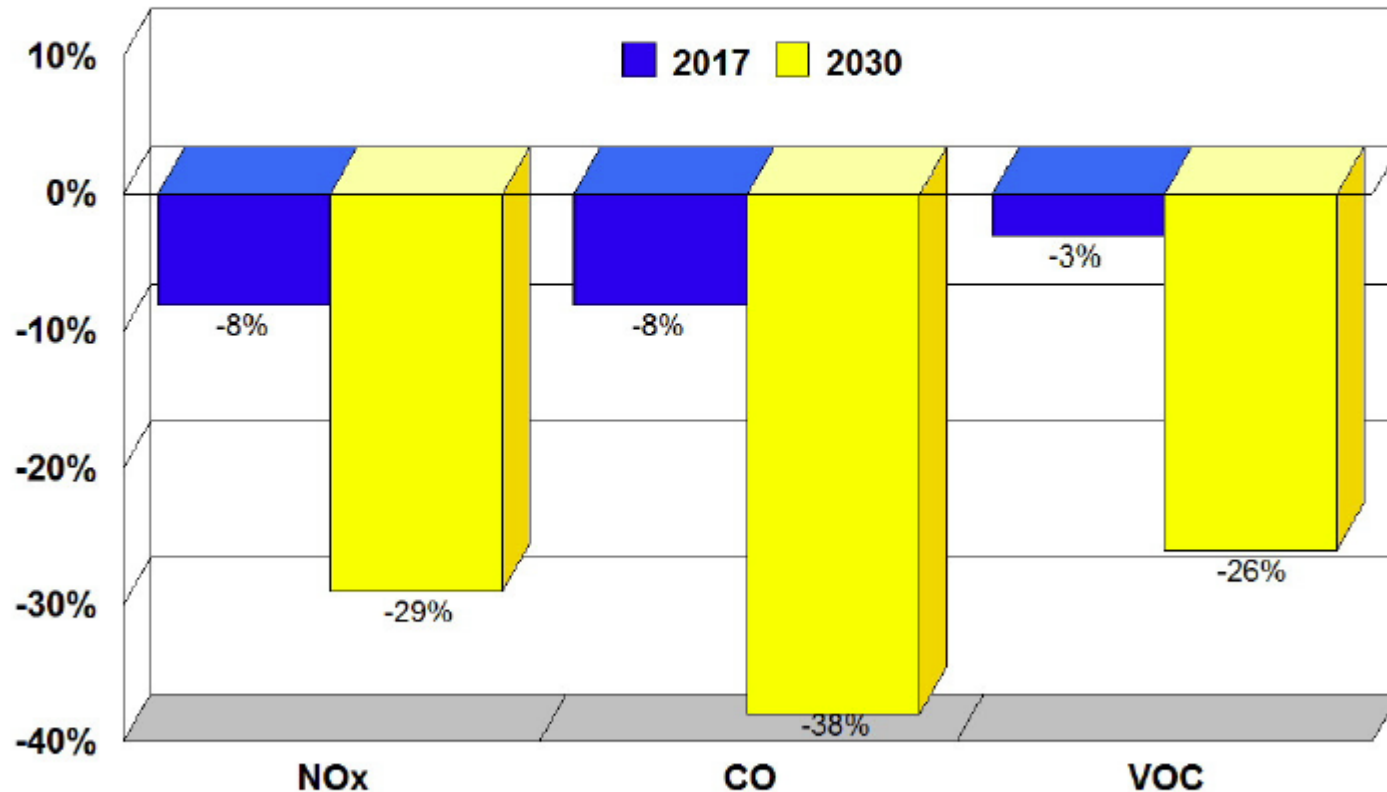
# Emissions Reduction Benefits From Tier 3 Vehicle and Fuels Requirements

Tons Reduced (VOCs)  
Thousands



Source: MP Walsh (2011).

# Overall Emissions Reductions From Onroad Mobile Sources



Source: MP Walsh (2011).




# Economic Benefits from Class I Areas

## Acadia National Park

- 2.5 million recreational visits in 2010
- Visitors spent more than \$186 million
- Generating more than 3,100 jobs and creating more than \$79 million in labor income

## Nat'l Forest Wilderness Areas in East Region

- 600,000 annual recreational visits (8% of national total)
  - Visitors spent more than \$33 million in nearby communities
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# Thank You!

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