

2014 v1 National Air Emissions Inventory

Emissions Inventory and Analysis Group

Office of Air Quality Planning and Standards, U.S. EPA

What is the National Emissions Inventory?

The EPA's Office of Air Quality Planning and Standards compiles the NEI using air emissions data collected from state, local, and tribal air agencies (SLT) as well as from EPA air emissions programs.

NEI Attributes

- Source Types:** stationary (large and small industries, commercial, institutional and consumer), mobile sources, fires, and biogenic (natural) emissions
- Pollutant coverage:** criteria air pollutants (CAPs) and precursors (NO_x, SO₂, CO, PM, NH₃, Pb, VOC) related to the NAAQS, and toxic or hazardous air pollutants (HAPs)
- Spatial Resolution:** emission release point locations for stationary and mobile sources reported at facilities, including stack and fugitive parameters; county-level for smaller stationary and mobile sources
- Temporal:** average annual emissions
- Frequency:** the NEI is published every 3 years; the most recent inventory is the 2014 NEI and will be followed by the 2017 NEI, etc.

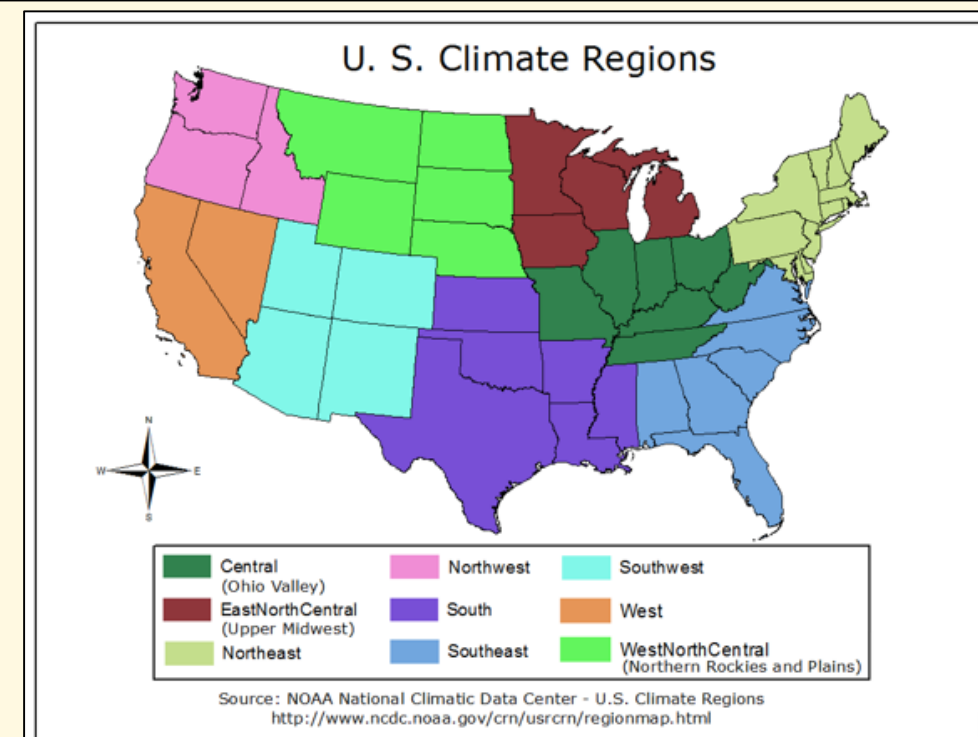
Air Emissions Reporting Rule

The AERR requires that SLTs report CAPs each year to EPA for large point sources and report a comprehensive inventory every three years for stationary and mobile sources. HAP emissions reporting is voluntary rather than required. The Emission Inventory System (EIS) is the repository for the data.

The NEI supports multiple air quality improvement efforts: national and regional air pollution reduction rules, development and implementation of National Ambient Air Quality Standards (NAAQS), the National Air Toxics Assessment (NATA), analysis of geographic trends and source sectors, international reporting requirements, and air pollution research.

Source category emission contributions VOC, PM2.5 and NOx (Tons x1000) For the NOAA Climate Regions

PM _{2.5}	50-100			101-500			501-1,500			>1,500		
	Stationary	Mobile	Fires	Stationary	Mobile	Fires	Stationary	Mobile	Fires	Stationary	Mobile	Fires
NCDC												
Central												
E N Central												
Northeast												
Northwest												
South												
Southeast												
Southwest												
West												
W N Central												



STATIONARY SOURCES				MOBILE SOURCES				FIRE SOURCES					
Agriculture	Dust - Roads/Construction	Industrial Processes	Miscellaneous	Aircraft	Commercial Marine Vessels	Locomotives	Nonroad Equipment	Agriculture Field Burning	Commercial/Institutional	Electric Generation	Industrial Boilers	Residential	Wildfires

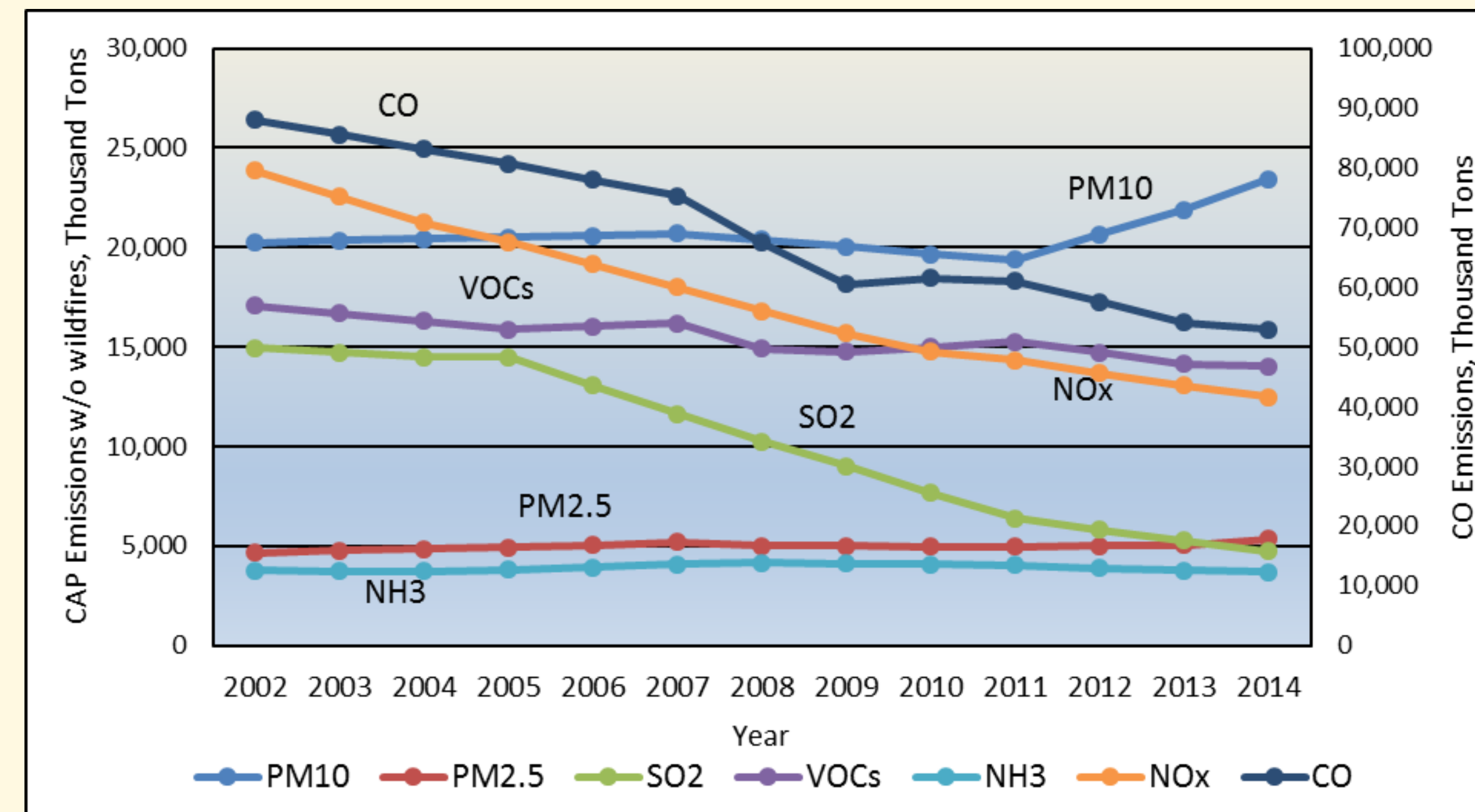
VOC	50-100			101-500			501-1,500			>1,500		
	Stationary	Mobile	Fires	Stationary	Mobile	Fires	Stationary	Mobile	Fires	Stationary	Mobile	Fires
NCDC												
Central												
E N Central												
Northeast												
Northwest												
South												
Southeast												
Southwest												
West												
W N Central												

NO _x	50-100			101-500			501-1,500			>1,500		
	Stationary	Mobile	Fires	Stationary	Mobile	Fires	Stationary	Mobile	Fires	Stationary	Mobile	Fires
NCDC												
Central												
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Northeast												
Northwest												
South												
Southeast												
Southwest												
West												
W N Central												

National Emissions, 2011 NEI v2 vs. 2014 NEI v1

Pollutant	Anthropogenic, x1000 Tons (Man-made)		Biogenic, x1000 Tons (Natural)		Total, x1000 Tons		Percent Change from 2011 to 2014
	2011	2014	2011	2014	2011	2014	
	CO	75,760	63,252	6,528	6,635	82,288	
NH ₃	4,316	3,869	NA	22.2	4,316	3,891	-10
NO _x	14,574	12,643	1,018	903	15,592	13,546	-13
PM ₁₀	20,907	24,506	NA	NA	20,907	24,506	17
PM _{2.5}	6,306	6,223	NA	NA	6,306	6,223	-1.3
SO ₂	6,557	4,812	NA	NA	6,557	4,812	-26
VOCs	18,169	16,478	39,653	38,679	57,822	55,157	-5
Pb	0.80	0.73	NA	NA	0.80	0.73	-9
BC (same as EC)	567	446	NA	NA	567	446	-21
Total HAPs	3,107	3,020	5,968	5,295	9,074	8,315	-8

National CAP and Precursor Emission Trends, 2002-2014 (no Wildfires)



Pollutant	Percent Change in going from 2011 to 2014	Percent Change in going from 2010 to 2014	Percent Change in going from 2002 to 2014
CO	-13	-14	-40
NH ₃	-8	-9	-1.9
NO _x	-13	-15	-48
PM ₁₀	21	19	16
PM _{2.5}	7	8	14
SO ₂	-26	-38	-68
VOCs	-8	-6	-18

Point non-EGU and NonPoint Regional and National Emissions Profile

Pt NonEGU & NonPt	Sector	Sector Pct of National Total x = PtnonEGU & NonPt							Emissions range (Tons x1000) in one or more NCDC Regions (PM precursors)						
		0-5 %		6-19 %		20-49 %		50-70 %	50-100		100-500		500-1,500		>1,500
		NOx	VOC	CO	PM _{2.5}	PM ₁₀	SO ₂	NH ₃	NOx	VOC	PM _{2.5}	PM ₁₀	SO ₂	NH ₃	
x	Agriculture - Crops & Livestock Dust	0%	0%	0%	29%	27%	0%	0%							
x	Agriculture - Fertilizer Application	0%	0%	0%	0%	0%	30%								
x	Agriculture - Livestock Waste	0%	0%	0%	0%	0%	63%								
x	Bulk Gasoline Terminals	0%	2%	0%	0%	0%	0%								
x	Commercial Cooking	0%	0%	1%	3%	1%	0%								
x	Dust - Construction Dust	0%	0%	0%	4%	6%	0%								
x	Dust - Paved Road Dust	0%	0%	0%	6%	5%	0%								
x	Dust - Unpaved Road Dust	0%	0%	0%	28%	52%	0%								
x	Fires - Agricultural Field Burning	1%	0%	7%	2%	0%	0%								
x	Fuel Comb - Comm/Institutional - Biomass	0%	0%	0%	0%	0%	0%								
x	Fuel Comb - Comm/Institutional - Coal	0%	0%	0%	0%	0%	3%								
x	Fuel Comb - Comm/Institutional - Natural Gas	5%	0%	1%	0%	0%	0%								
x	Fuel Comb - Comm/Institutional - Oil	2%	0%	0%	0%	0%	2%								
x	Fuel Comb - Comm/Institutional - Other	0%	0%	0%	0%	0%	0%								
x	Fuel Comb - Industrial Boilers, ICES - Biomass	4%	0%	4%	4%	1%	2%								
x	Fuel Comb - Industrial Boilers, ICES - Coal	5%	0%	1%	1%	0%	34%								
x	Fuel Comb - Industrial Boilers, ICES - Natural Gas	21%	1%	5%	1%	0%	1%								
x	Fuel Comb - Industrial Boilers, ICES - Oil	3%	0%	0%	0%	0%	3%								
x	Fuel Comb - Industrial Boilers, ICES - Other	2%	0%	1%	0%	0%	4%								
x	Fuel Comb - Residential - Natural Gas	7%	0%	1%	0%	0%	1%								
x	Fuel Comb - Residential - Oil	1%	0%	0%	0%	0%	5%								
x	Fuel Comb - Residential - Other	1%	0%	0%	0%	0%	0%								
x	Fuel Comb - Residential - Wood	1%	4%	26%	8%	2%	1%								
x	Gas Stations	0%	5%	0%	0%	0%	0%								
x	Industrial Processes - Cement Manuf	4%	0%	1%	0%	0%	3%								
x	Industrial Processes - Chemical Manuf	2%	1%	2%	0%	0%	9%								
x	Industrial Processes - Ferrous Metals	2%	0%	4%	1%	0%	2%								
x	Industrial Processes - Mining	0%	0%	0%	2%	2%	0%								
x	Industrial Processes - NEC	5%	2%	2%	2%	1%	11%								
x	Industrial Processes - Non-ferrous Metals	1%	0%	3%	0%	0%	5%								
x	Industrial Processes - Oil & Gas Production	25%	39%	10%	1%	0%	6%								
x	Industrial Processes - Petroleum Refineries	2%	1%	1%	0%	0%	4%								
x	Industrial Processes - Pulp & Paper	2%	2%	1%	1%	0%	2%								
x	Industrial Processes - Storage and Transfer	0%	2%	0%	0%	0%	0%								
x	Miscellaneous Non-Industrial NEC	0%	1%	3%	0%	0%	0%								
x	Solvent - Consumer & Commercial Solvent Use	0%	19%	0%	0%	0%	0%								
x	Solvent - Degreasing	0%	2%	0%	0%	0%	0%								
x	Solvent - Dry Cleaning	0%	0%	0%	0%	0%	0%								
x	Solvent - Graphic Arts	0%	4%	0%	0%	0%	0%								
x	Solvent - Industrial Surface Coating & Solvent Use	0%	7%	0%	0%	0%	0%								
x	Solvent - Non-Industrial Surface Coating	0%	4%	0%	0%	0%	0%								
x	Waste Disposal	4%	2%	25%	6%	1%	3%								
	Total	100%	100%	100%	100%	100%	100%								

Expected Changes in the 2014 NEI v2

- Updates to activity data, emissions factors and emissions for several stationary nonpoint emission categories
- Inclusion of state submitted data for various sectors based on quality reviews of 2014 NEI v1 data
- Corrections to EPA estimates based on v1 review and comment
- Addition of some small sources not included in the NEI v1

2014 NEI v2 to be released later in 2017