PROFILE OF VERSION 1 OF THE 2014 NATIONAL EMISSIONS INVENTORY

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U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Air Quality Assessment Division
Research Triangle Park, NC

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U.S. EPA 2014 NEI Version 1.0
Office of Air Quality Planning and Standards
Emissions Inventory and Analysis Group
April 2017

Acknowledgements
EIAG Data Analysis Team and NEI Team

This overview describes the air pollutant emissions in the 2014 National Emissions Inventory (NEI) Version 1.0 (2014 NEI v1, or just 2014 NEI in this document) published by the U.S. Environmental Protection Agency (EPA) in October 2016. The pollutants included in the NEI are the pollutants for which the agency has established National Ambient Air Quality Standards (NAAQS), known as criteria air pollutants (CAPs), as well as hazardous air pollutants (HAPs) associated with EPA's Air Toxics Program. The CAPs have ambient concentration limits from the NAAQS program. These pollutants include lead (Pb), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter 10 microns in diameter or less (PM_{10}) and particulate matter 2.5 microns in diameter or less ($PM_{2.5}$). Precursors to CAPs include volatile organic compounds (VOCs), SO_2, ammonia (NH_3), and nitrogen oxide (NO_x) emissions. VOCs and NOx play a key role in ozone formation, while all these precursors play a role in ambient $PM_{2.5}$ formation. The HAP pollutants include the 187 remaining HAP pollutants from the original 189 listed in Section 112(b) of the 1990 Clean Air Act Amendments. This overview also includes emission profiles of black carbon (BC). Please note that BC will be used interchangeably with elemental carbon (EC) throughout the report.

The NEI is developed every 3 years (e.g., 2005, 2008, 2011, etc.). This overview of the 2014 NEI applies the concepts developed in previous 2008 and 2011 NEI reports as well as many of the graphics and tables contained in those reports. A process is underway to update the 2014 NEI v1 to version 2 (v2), which we expect to be released in the fall of 2017. In this overview, emission profiles are presented for most of the CAPs (Pb is not covered) and CAP precursors, BC (which is a strong light-absorbing component of particulate matter), and for some select HAPs that account for a large portion of the 2011 National Air Toxics Assessment (NATA) nationwide cancer or non-cancer risk.

The information presented here about the 2014 NEI includes the following:

- Key emissions source contributions at the national level.
- National and state emissions trends.
- Emission differences between 2011v2 and 2014 NEIs.
- Distribution of emissions by National Climatic Data Center (NCDC) climate regions.

To keep this overview concise, we provide graphical summaries for some, but not all, pollutants. In past reports that have been more comprehensive, we included more tabular emissions summaries along with the graphics, but fewer tables are included in this overview document. Readers should reference our 2014 NEI v1 Documentation and especially the Technical Support Document (TSD) for more details on the data presented here, its derivation, methods, and expected future revisions. Additional materials are also available by request, and readers who would like additional information associated with a given graphic or analysis are encouraged to contact the Emissions Inventory and Analysis Group, Data Analysis Team at info.chief@epa.gov.

I. Comparison of Total Emissions in the 2014 NEI v1 and the 2011 NEI v2

Table 1: Total Emissions, All Sectors 2011 NEI v2 vs. 2014 NEI v1

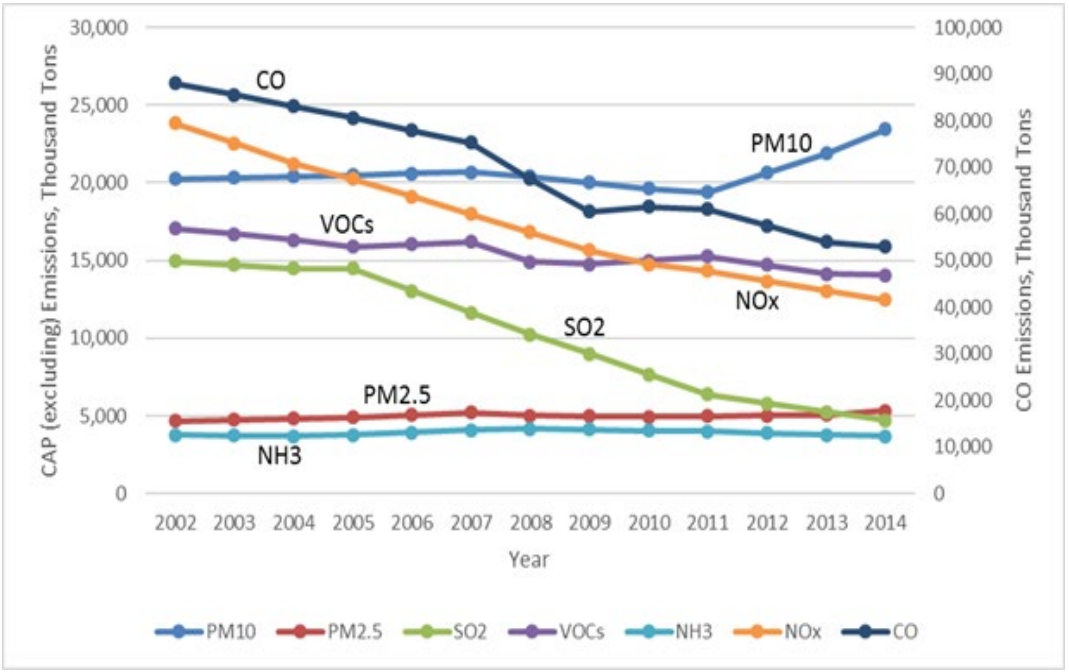
Pollutant	Anthropogenic, x1000 Tons (Man-made)		Biogenic, x1000 Tons (Natural)		Total, x1000 Tons		Percent Change from 2011 to 2014
	2011	2014	2011	2014	2011	2014	
CO	75,760	63,252	6,528	6,635	82,288	69,907	-15
NH_3	4,316	3,869	NA	22.2	4,316	3,891	-10
NO_x	14,574	12,643	1,018	903	15,592	13,546	-13
PM_{10}	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

- Table 1 summarizes total national emissions in the 2014 NEI v1 as compared with 2011NEI v2. Total sums in Table 1 include the continental U.S., Alaska, Hawaii, all territories, tribal lands, and excludes emissions from off-shore areas of federal waters.
- CO, PM_{10} and VOC are emitted in the greatest amounts in both 2014 and 2011.
- The greatest percent reductions from 2011 to 2014 have occurred in SO_2, BC, and CO emissions. The increase in PM_{10} is covered in section II.
- Only CO, VOC, NH_3, NO_X and total HAPs have a biogenic emissions component. EPA's BEIS model does not estimate ammonia emissions. The biogenic NH_3 emissions were reported by California. Nearly all the biogenic HAP emissions consist of formaldehyde, methanol, and acetaldehyde.
- The 8 percent decrease in total HAPs from 2011 to 2014 reflects all HAP emissions included in the respective inventories, including biogenic HAP and non-VOC, non-PM HAPs. Half of the reduction is due to methanol biogenics, some of which is likely due to a method change in estimating these emissions. Approximately a fourth of the reduction in toluene is from mobile sources and solvents. Also making up a large amount of the decrease are: hexane from solvents; xylenes from mobile sources and solvents; and benzene from mobile sources and fires.

II. National CAP and Precursor Emission Trends, 2002-2014

- Figure 1 shows national CAP and precursor emission trends from 2002 to 2014. These emission totals differ slightly from the emission totals in Table 1 because wildfire emissions are excluded from Figure 1 (due to the extreme variation in wildfire activity from year to year). Table 2 shows percent change in emissions over 3 different time ranges: 2011-2014, 2010-2014, and 2002-2014.
- From 2002 to 2014, all pollutants other than PM and NH_3 show decreases greater than 10 percent. NH_3 emissions have remained at near-constant levels in this timeframe, as few controls have been implemented for NH_3-rich source categories (livestock, fertilizer, etc.). The increase in PM (both fine and coarse) is due to a method change for the 2014 NEI, where dust emissions were no longer adjusted for meteorology (which causes emissions to be much higher). This method change will be eliminated for 2014 NEI v2.
- SO_2 and NOx show the largest decreases from 2002 to 2014: 68 percent and 48 percent, respectively.

Figure 1: National CAP and Precursor Emission Trends, 2002-2014 (no Wildfires)

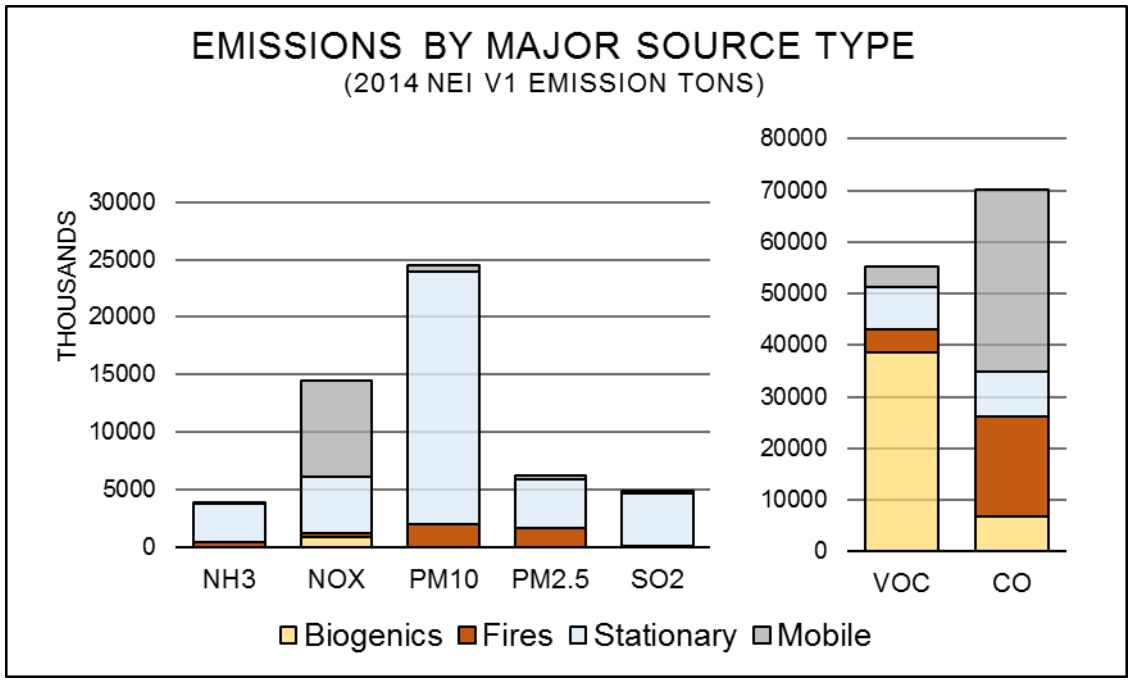


U.S. National CAP Emission Trends are located on the Air Pollutant Emissions Trends Data website and include explanation of the data sources, method for developing trends, and description of the 'Tier' emissions categories. These emission trends generally reflect changes seen in the ambient data over the same period for most of the pollutants.

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

III. National 2014 NEI v1 CAP/HAP Emission Profiles

Figure 2: National CAP, CAP Precursor, and Biogenic Emissions by Major Source Type



- Figure 2 summarizes national emissions by pollutant and shows the amount of emissions for each of the major source types—Stationary, Mobile, Biogenics, and Fires (the legend for Figure 2 provides more details about these categories).
- Figure 2 shows biogenic emissions to be a large contributor to VOC emissions, and a smaller contributor to CO and NOx emissions.
- In general, stationary sources dominate contribution to SO_2, NH_3 and PM emissions (since dust categories are included in the definition of stationary sources), whereas mobile sources contribute significantly to CO and NOx emissions. Fires are important contributors to CO, PM and VOC emissions.

In Figure 3, the larger emission source types for each pollutant are highlighted along with percent emissions contribution of different subsectors (tons of pollutant emitted for that source and its percentage contribution to the sector shown in the pie chart) within that major source type. For the largest slices of the pies (large subsector contributions), further detail is provided about the amount of emissions and the processes involved. Emission sectors less than 500 tons are not shown in Figure 3.

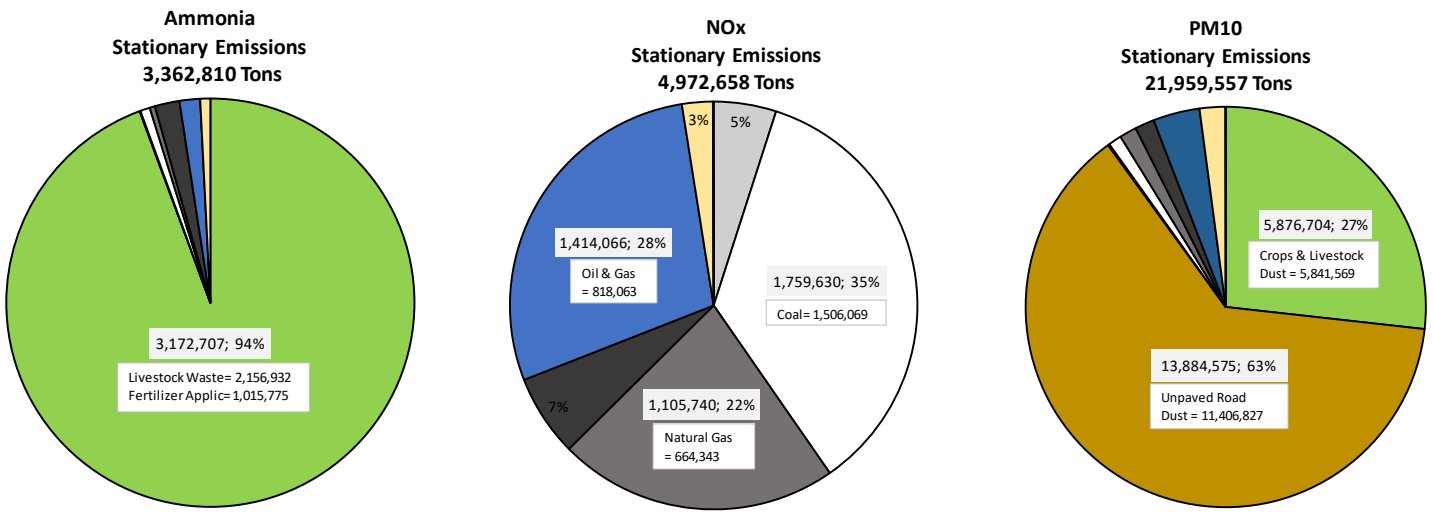
Legend for Figure 3

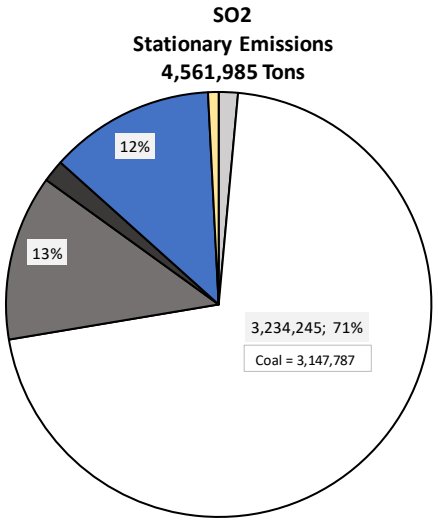
STATIONARY SOURCES			
	Agriculture	Fuel Combustion	
	Dust – Roads/ Construction		Commercial/Institutional
	Industrial Processes		Electric Generation
	Miscellaneous		Industrial Boilers
	Solvents		Residential

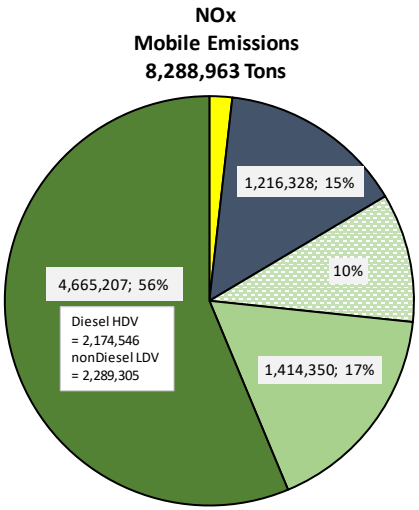
FIRE SOURCES
Agriculture Field Burning
Prescribed Fires
Wildfires

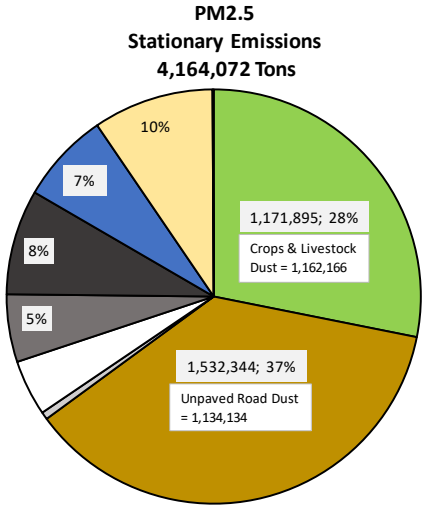
MOBILE SOURCES			
	Aircraft		Nonroad Equipment
	Commercial Marine Vessels		Onroad Vehicles
	Railroad		

Figure 3: Larger sub-sectors within major source types shown in Figure 1 for CAPs and Precursors

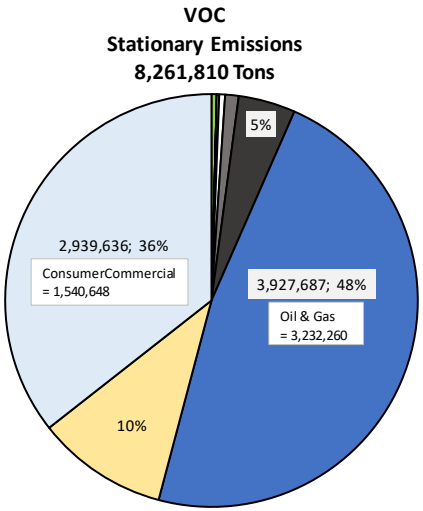


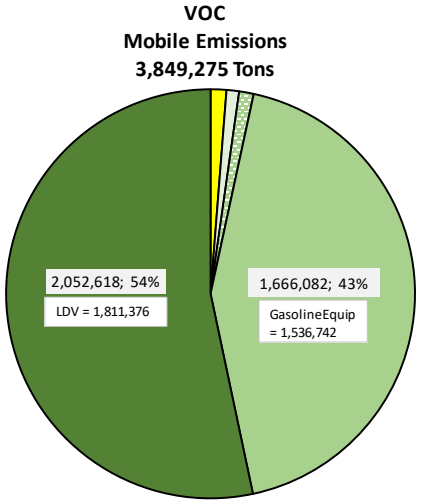

SO2
Stationary Emissions
4,561,985 Tons
12%
13%
3,234,245; 71%
Coal = 3,147,787

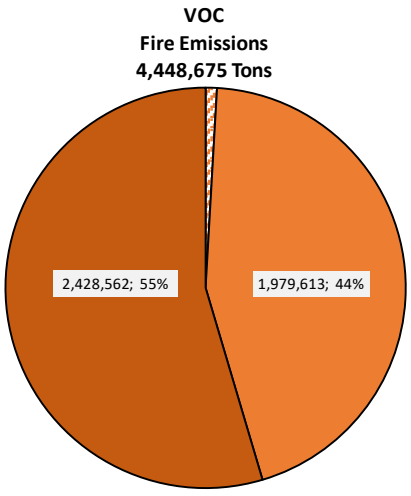

NOx
Mobile Emissions
8,288,963 Tons
1,216,328; 15%
10%
4,665,207; 56%
Diesel HDV
= 2,174,546
nonDiesel LDV
= 2,289,305
1,414,350; 17%

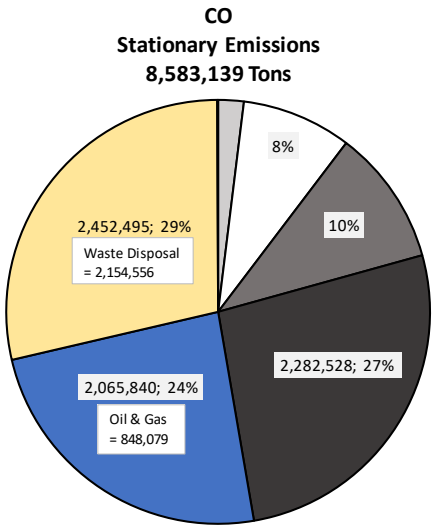

PM2.5
Stationary Emissions
4,164,072 Tons
10%
7%
8%
5%
1,171,895; 28%
Crops & Livestock
Dust = 1,162,166
1,532,344; 37%
Unpaved Road Dust
= 1,134,134

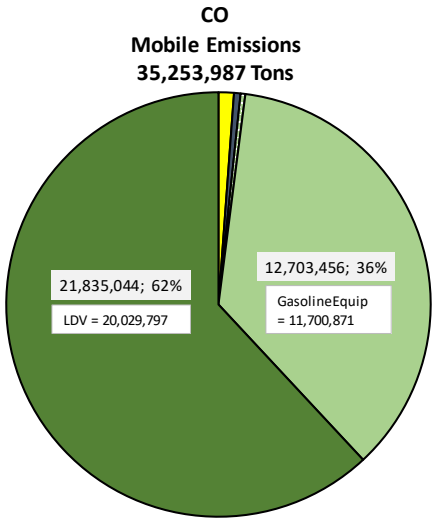
x

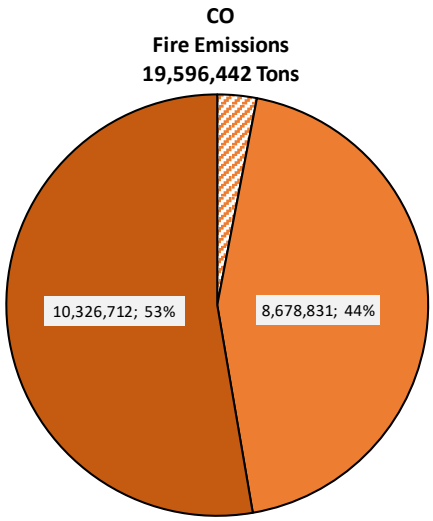

VOC
Stationary Emissions
8,261,810 Tons
5%
2,939,636; 36%
ConsumerCommercial
= 1,540,648
3,927,687; 48%
Oil & Gas
= 3,232,260
10%

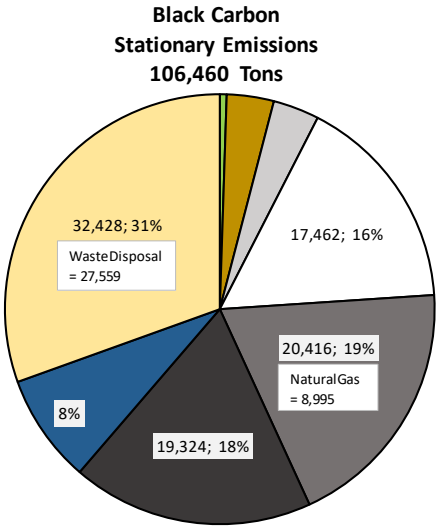

VOC
Mobile Emissions
3,849,275 Tons
2,052,618; 54%
LDV = 1,811,376
1,666,082; 43%
GasolineEquip
= 1,536,742

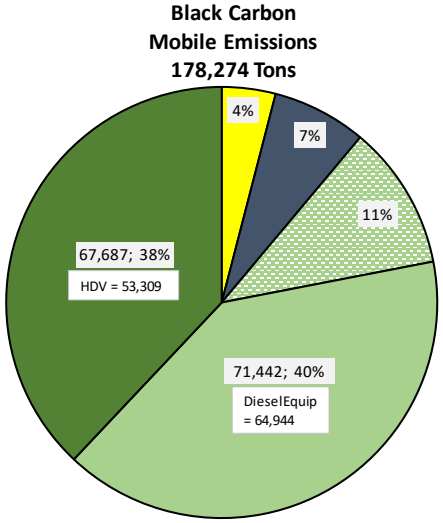

VOC
Fire Emissions
4,448,675 Tons
2,428,562; 55%
1,979,613; 44%

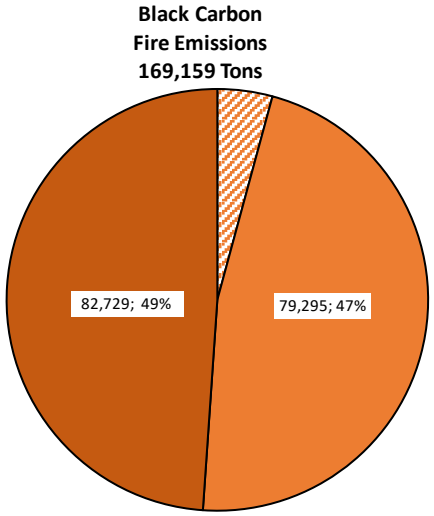










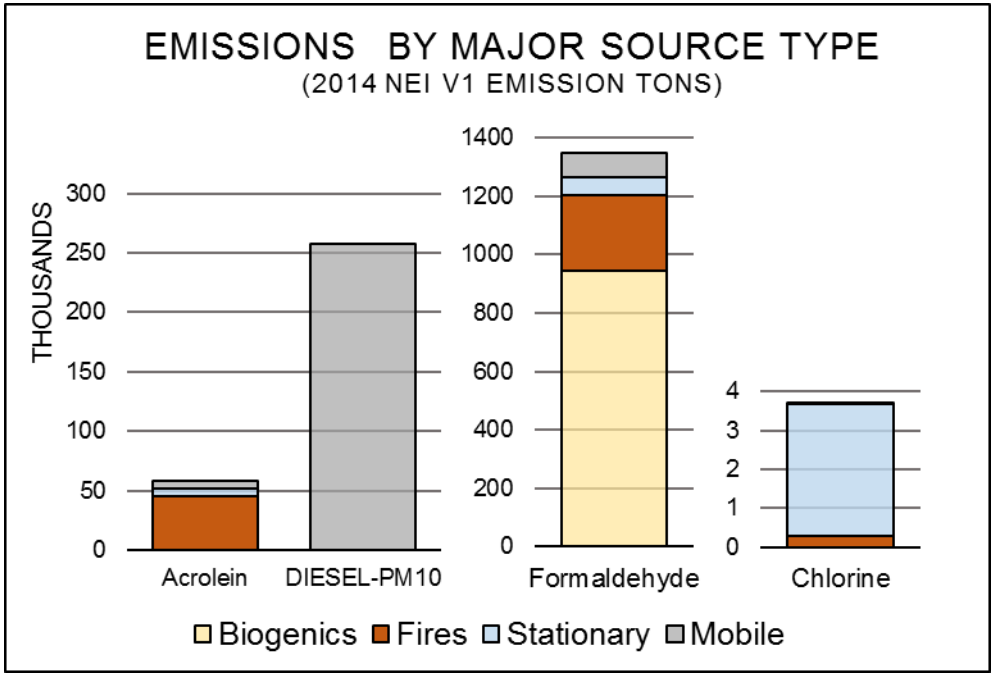


- Each of these pie charts show the total amount of emissions for each of the source types as well as percentage contributions from sectors that make up the source types.

- For stationary sources at the national level:
  - NH_3 emissions are dominated by livestock waste and fertilizer sectors.
  - Oil and gas, coal combustion, and natural gas combustion all contribute significantly to NOx emissions.
  - Unpaved road dust emissions are significant contributors to stationary source PM; agricultural dust is also a significant contributor to $PM_{2.5}$ emissions.
  - Oil and gas and consumer/commercial sectors are dominant contributors to VOC.
  - Natural gas combustion and waste disposal are leading contributors to BC emissions.

- For mobile sources at the national level
  - Diesel sources (onroad and nonroad) contribute more than half of NOx emissions and commercial marine vessels contribute 15 percent of the total emissions.
  - Light duty vehicles and nonroad equipment contribute to most of the VOC and CO emissions.
  - Diesel sources contribute nearly 80 percent of the total mobile source EC emissions.
- For fires at the national level
  - Fires are significant contributors to $PM_{2.5}$, VOC, CO, and EC emissions. Wild- and prescribed fires are biggest contributors nationally to these emissions.
- The next set of analyses shows select HAPs in the 2014 NEI v1, using similar source type/sectors as done for the CAPs.

Figure 4: National HAP Emissions by Major Source Types



- Similar to Figure 2 for CAPs, Figure 4 shows select HAP emissions by major source type---Fires, Stationary, Biogenics, and Mobile sources.
- HAPs shown in Figure 4 are limited to those that reflect national risk drivers in 2011 NATA. Formaldehye is a cancer risk driver, and the other three HAPs shown are noncancer risk drivers. Figure 4 shows biogenic emissions to be a large contributor to formaldehyde emissions.
- Fires are a dominant contributor to acrolein and formaldehyde emissions, while stationary sources contribute dominantly to chlorine emissions. By definition, all of the diesel PM_{10} (DPM) emissions come from mobile in the NEI.

Similar to Figure 3 for CAPs, Figure 5 below shows more sector details for those sources that are major contributors to the HAPs shown in Figure 4. Again, the numbers in the slices highlight both tons of pollutant emitted by the slice's sector and the percentage contribution to that overall sector, with the two numbers separated by a comma.

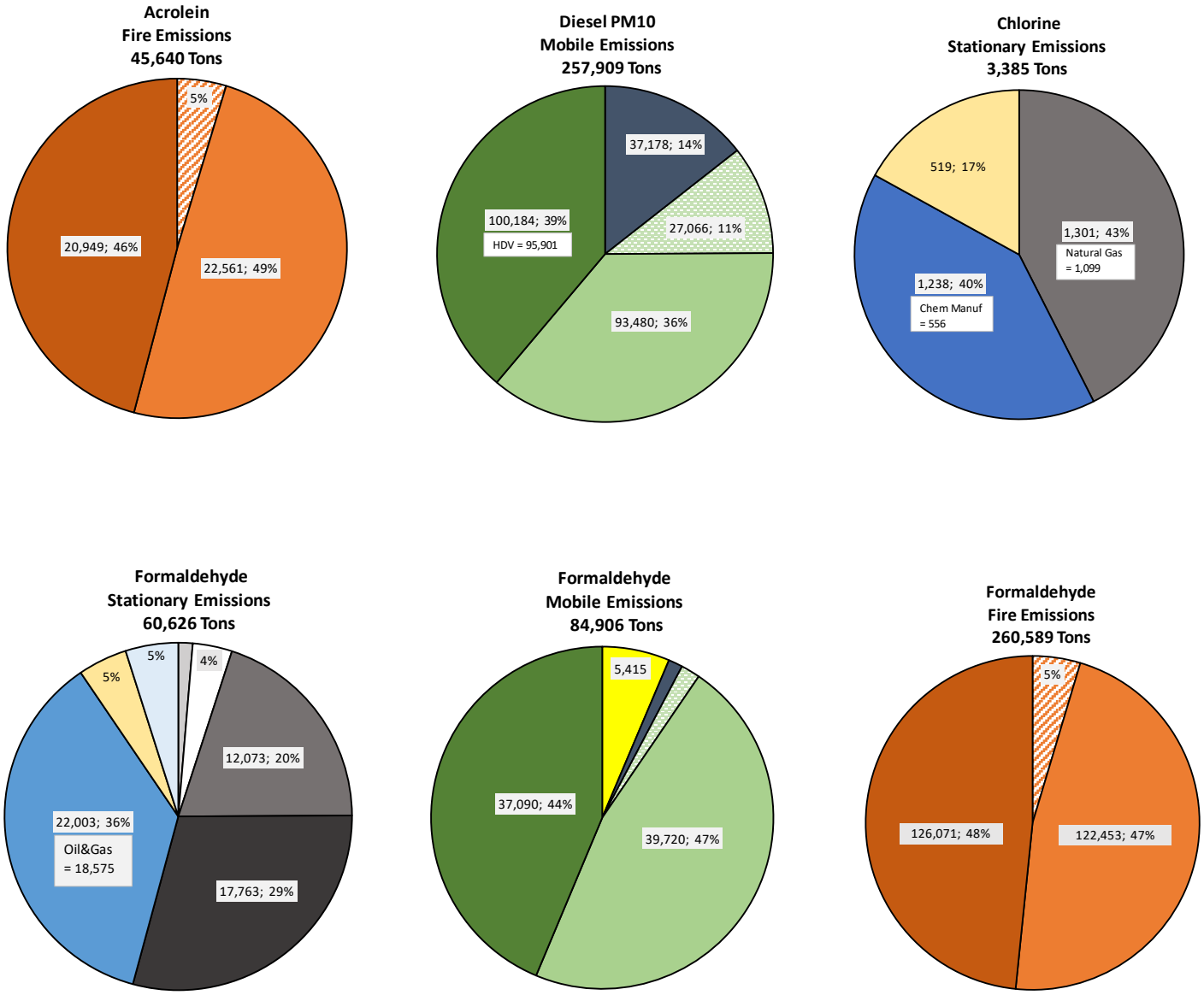
Legend for Figure 5

STATIONARY SOURCES			
	Agriculture		Fuel Combustion
	Dust – Roads/ Construction		Commercial/Institutional
	Industrial Processes		Electric Generation
	Miscellaneous		Industrial Boilers
	Solvents		Residential

FIRE SOURCES	
	Agriculture Field Burning
	Prescribed Fires
	Wildfires

MOBILE SOURCES			
	Aircraft		Nonroad Equipment
	Commercial Marine Vessels		Onroad Vehicles
	Railroad		

Figure 5: Larger sub-sectors within major source types shown in Figure 3 for select HAPs



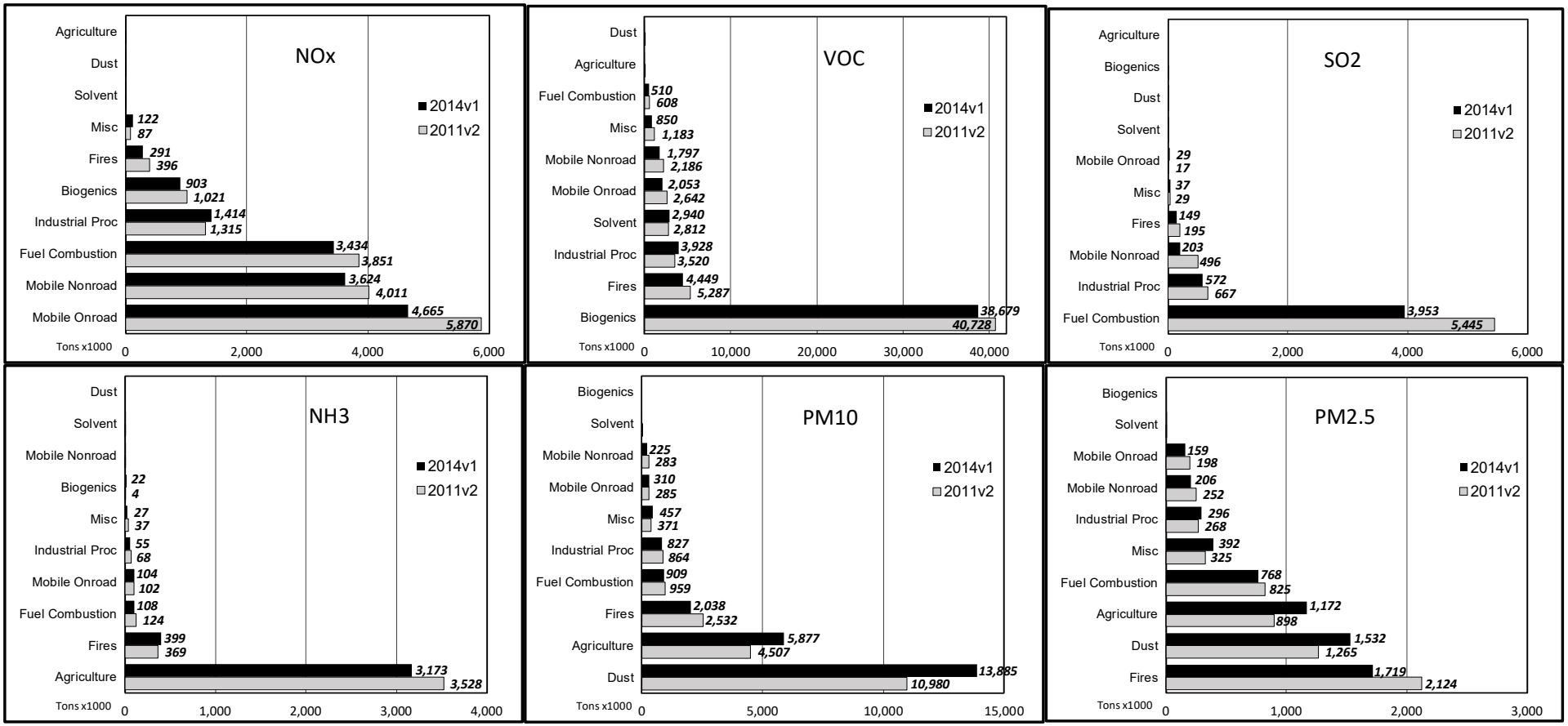
- At the national level, for these select HAPs:
  - Stationary source chlorine emissions are dominated by industrial boilers using natural gas, chemical manufacturing and non-ferrous metals production. One non-ferrous metals facility contributes 40 percent of the total stationary emissions.

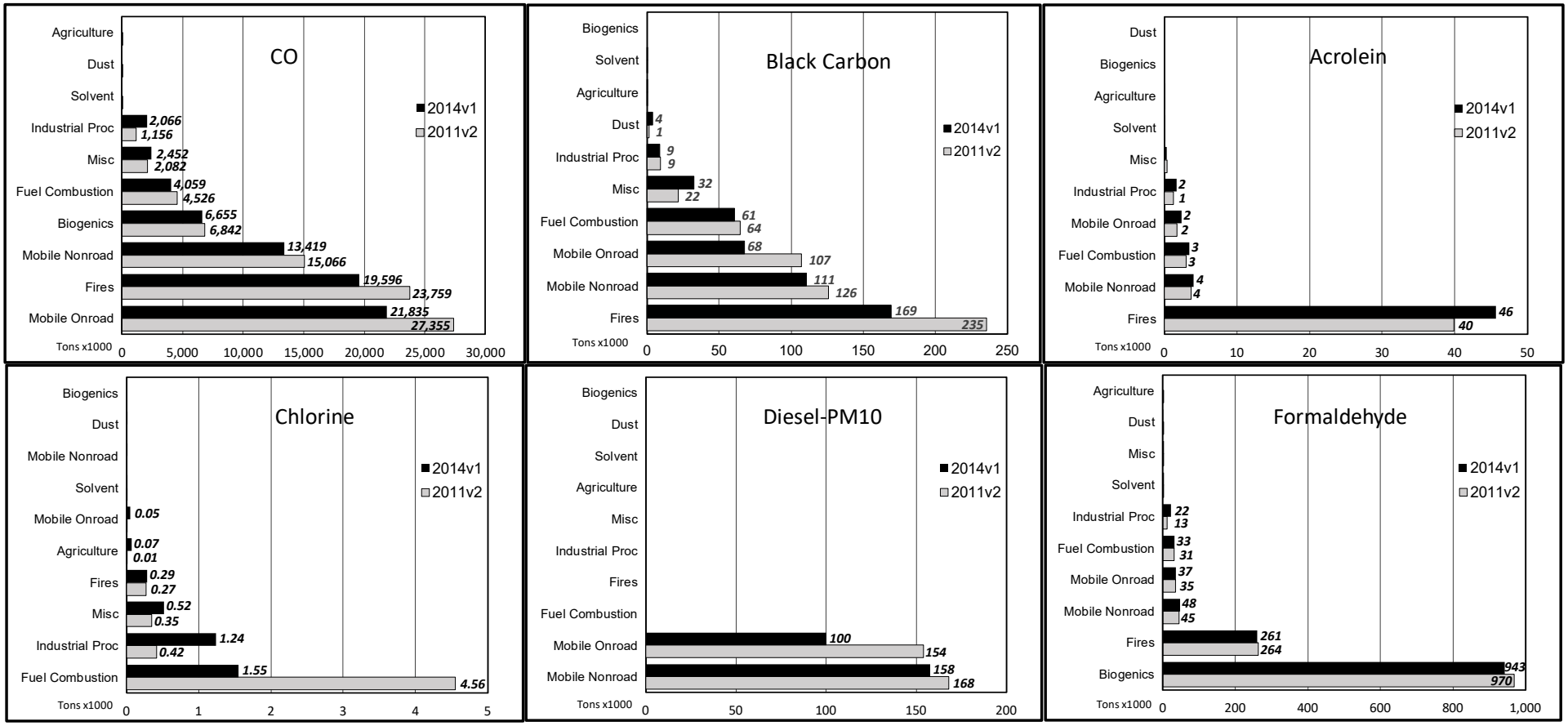
- Stationary source formaldehyde emissions are dominated by residential wood combustion and industrial processes of which oil and gas production is the largest contributing source type.
- Heavy duty diesel vehicles are the top emitting sector within mobile sources for DPM, while nonroad diesel equipment is the top emitting mobile sector for formaldehyde emissions.
- Fires are the leading sector contributing to formaldehyde and acrolein emissions, with wild- and prescribed fires providing the largest portion.

Figure 6 below shows emission differences between the 2011v2 and 2014v1 inventories for ten sectors.

- In Figure 6, the top black bar indicates the amount of sector emissions in the 2014 NEI, compared to the bottom gray bar that indicates the amount of emissions for that sector in the 2011 NEI. Appropriate summing of sector information in these charts should equal the total emissions shown in Table 1 for both 2011 and 2014.
- CAP, CAP precursors, BC, and the select HAPs discussed earlier are all displayed. Please note that while Diesel PM is displayed, it is not considered to be a HAP.

Figure 6: Emissions comparison between the 2011 and 2014 NEIs



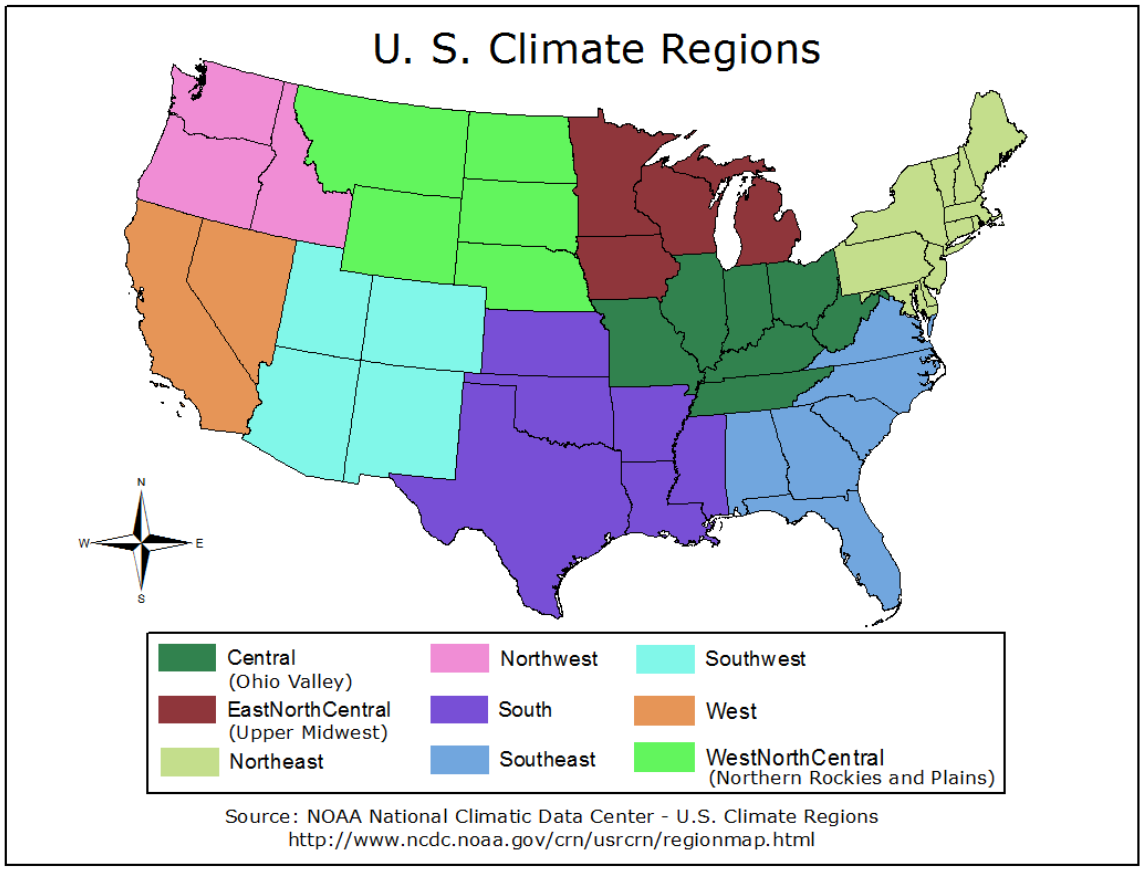


- In most cases, for most pollutants, 2014 emissions estimates are lower than 2011. This aspect is covered more in the trends section presented later in this report.
- PM emissions estimates are higher in 2014 for the dust and agricultural categories. However, this increase is an artifact of a method change in 2014 NEI v1. The dust sectors were unadjusted for meteorology in the 2014 NEI and, thus, appear to be higher than in the 2011 emissions that were adjusted for precipitation. This artifact will be corrected in the 2014 NEI v2.
- Fire emissions are lower in 2014 than 2011 for all CAPs because 2014 was a milder fire year than 2011. However, HAP Emission Factors (EFs) for prescribed fires and wildfires were revised based on new studies, so formaldehye and acrolein EFs are now larger, resulting in higher 2014 emission estimates for fires for some pollutants.
- The 2014 increase in the industrial processes sector for chlorine emissions come primarily from the chemical manufacturing sector. Similarly, the increase in 2014 chlorine emissions in the “Misc” category comes from landfills and industrial incineration.

IV. Regional Profiles of 2014 NEI v1 Data

- In this section, regional profiles of CAPs, CAP precursor emissions, BC, and select HAPs will be presented.
- The regional emissions profile is based on the NCDC Regions. The 9 NCDC Regions are based on the climatological map developed and maintained by the U.S. National Oceanic and Atmospheric Administration (NOAA). The 9 regions are based on similar meteorology, which affects many emissions and emission processes. The NCDC regions are shown below in Figure 7 and have been used previously in the 2008 and 2011 NEI reports.
- The regional analysis (Figures 8a-8e) identifies the emission source types with the largest emission contributions in each NCDC Region for CAP and CAP precursors only. Within each NCDC Region, sectors with emission sums greater than 50,000 tons within the stationary, mobile, and fire source types are listed and sorted into four emission ranges beginning with 50,000 tons and up to greater than 1,500,000 tons. Note that the emission ranges listed in Figures 8a-8e are in thousand tons. Emissions are summarized by the same 17 sectors that were indicated in the national profile (section III pie charts). This analysis helps draw out predominant sectors in each region by pollutant.
- Note that the emissions shown in each of the Figures 8a-8e are emissions x 1000 tons.

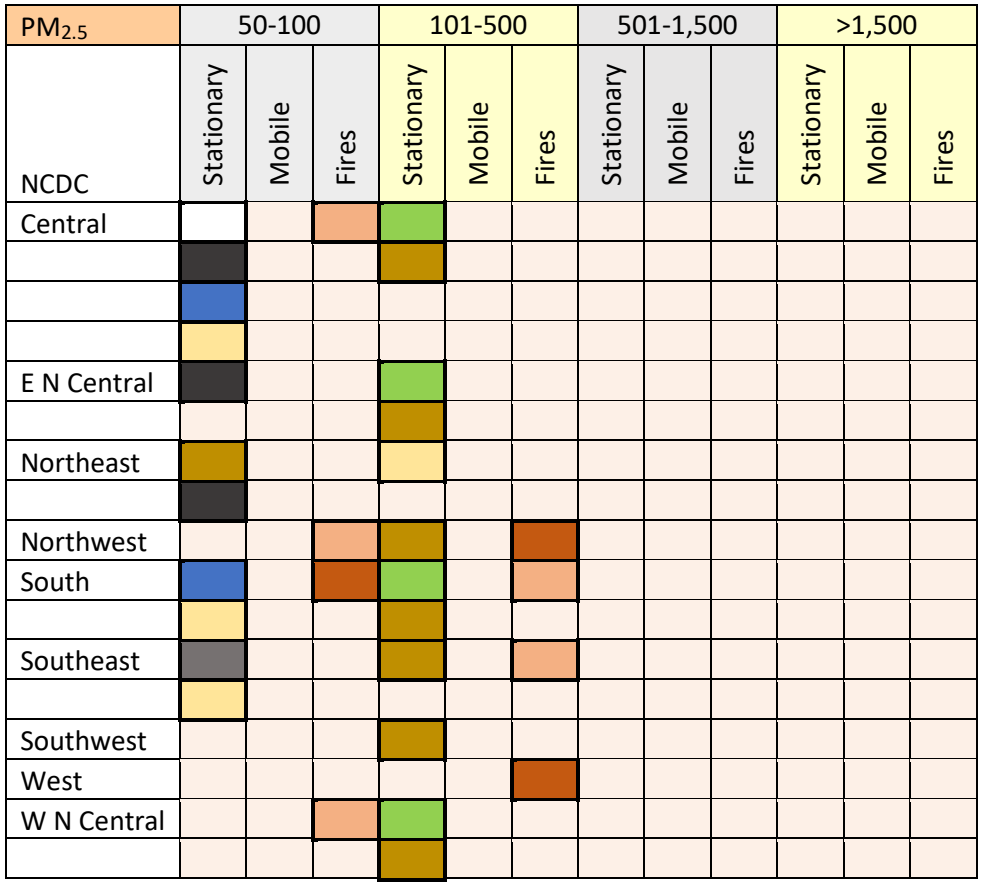
Figure 7: NCDC Climate Regions Map



Color Coding (legend) for all the graphics included in Figure 8a-8e.

STATIONARY SOURCES
Agriculture
Dust – Roads/ Construction
Industrial Processes
Miscellaneous
Solvents
Fuel Combustion
Commercial/Institutional
Electric Generation
Industrial Boilers
Residential
MOBILE SOURCES
Aircraft
Commercial Marine Vessels
Locomotives
Nonroad Equipment
Onroad Vehicles
FIRE SOURCES
Agriculture Field Burning
Prescribed Fires
Wildfires

Figure 8a: Emissions (1000x) source types with the largest regional contributions for $PM_{2.5}$



The $PM_{2.5}$ regional profile in Figure 8a reveals the following:

- The major $PM_{2.5}$ emission contributions are from agriculture, dust, and miscellaneous sources. The miscellaneous sources include mostly commercial cooking and open burning in the northeast region. There are no contributions greater than 501,000 tons for $PM_{2.5}$ from any individual region from any of the sectors depicted above.
- In the lowest $PM_{2.5}$ emissions bin (50,000-100,000 total tons) in the central region, electric generating utilities (EGUs) play a significant role within stationary sources. In this same emissions bin, residential wood combustion (RWC) is seen to play a role in several regions.
- The agriculture, dust, and miscellaneous sectors play a significant role for $PM_{2.5}$ in many regions. Fires are seen to be contributors in the South, Southeast (prescribed fires), Northwest, and West regions.
- Mobile sources do not contribute more than 50,000 tons of $PM_{2.5}$ to any of the regions.

Color Coding (legend) for all the graphics included in Figure 8a-8e.

STATIONARY SOURCES
Agriculture
Dust – Roads/ Construction
Industrial Processes
Miscellaneous
Solvents
Fuel Combustion
Commercial/Institutional
Electric Generation
Industrial Boilers
Residential
MOBILE SOURCES
Aircraft
Commercial Marine Vessels
Locomotives
Nonroad Equipment
Onroad Vehicles
FIRE SOURCES
Agriculture Field Burning
Prescribed Fires
Wildfires

Figure 8b: Emissions (1000x) source types with the largest regional contributions for SO_2

SO_2	50-100			101-500			501-1,500			>1,500		
NCDC	Stationary	Mobile	Fires	Stationary	Mobile	Fires	Stationary	Mobile	Fires	Stationary	Mobile	Fires
Central												
E N Central												
Northeast												
Northwest												
South												
Southeast												
Southwest												
West												
WN Central												

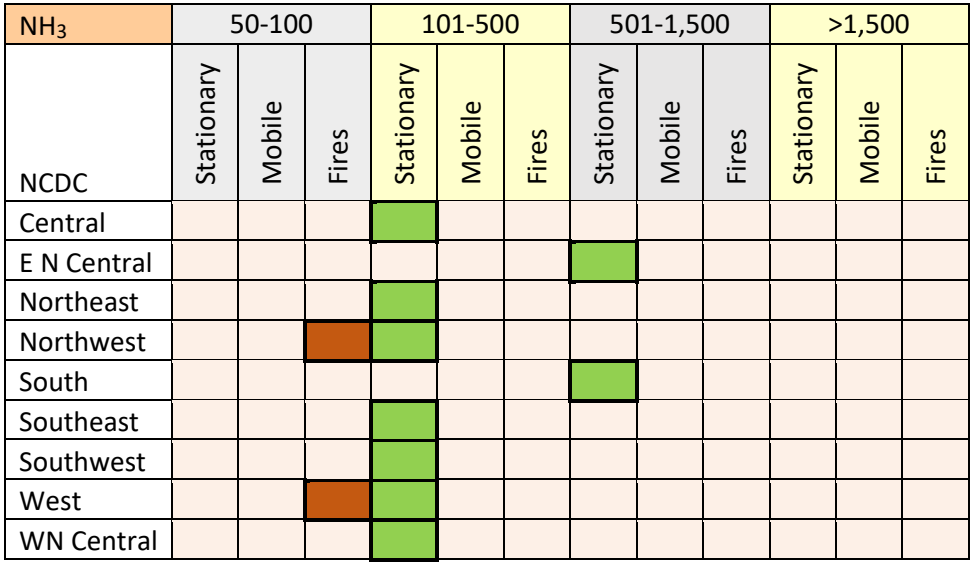
The SO_2 regional profile in Figure 8b reveals the following:

- Stationary sources make up the major contributors of SO_2 from most regions.
- EGUs are significant contributors of SO_2 in the EN Central, Northeast, Southeast, WN Central, Central, Southwest? and South regions (in the South and Central region, EGUs contribute at the 500,000 – 1,500,000-ton level).
- Industrial boilers and residential sources are contributors of SO_2 in the EN Central, Central, Northeast, South and Southeast regions.
- Industrial process are contributors of SO_2 as well in the South, Southeast, WN Central, and Central regions, with large contributions in those regions from chemical manufacturing, oil and gas production, and petroleum refineries.

Color Coding (legend) for all the graphics included in Figure 8a-8e.

STATIONARY SOURCES
Agriculture
Dust – Roads/ Construction
Industrial Processes
Miscellaneous
Solvents
Fuel Combustion
Commercial/Institutional
Electric Generation
Industrial Boilers
Residential
MOBILE SOURCES
Aircraft
Commercial Marine Vessels
Locomotives
Nonroad Equipment
Onroad Vehicles
FIRE SOURCES
Agriculture Field Burning
Prescribed Fires
Wildfires

Figure 8c: Emissions (1000x) source types with the largest regional contributions for NH_3



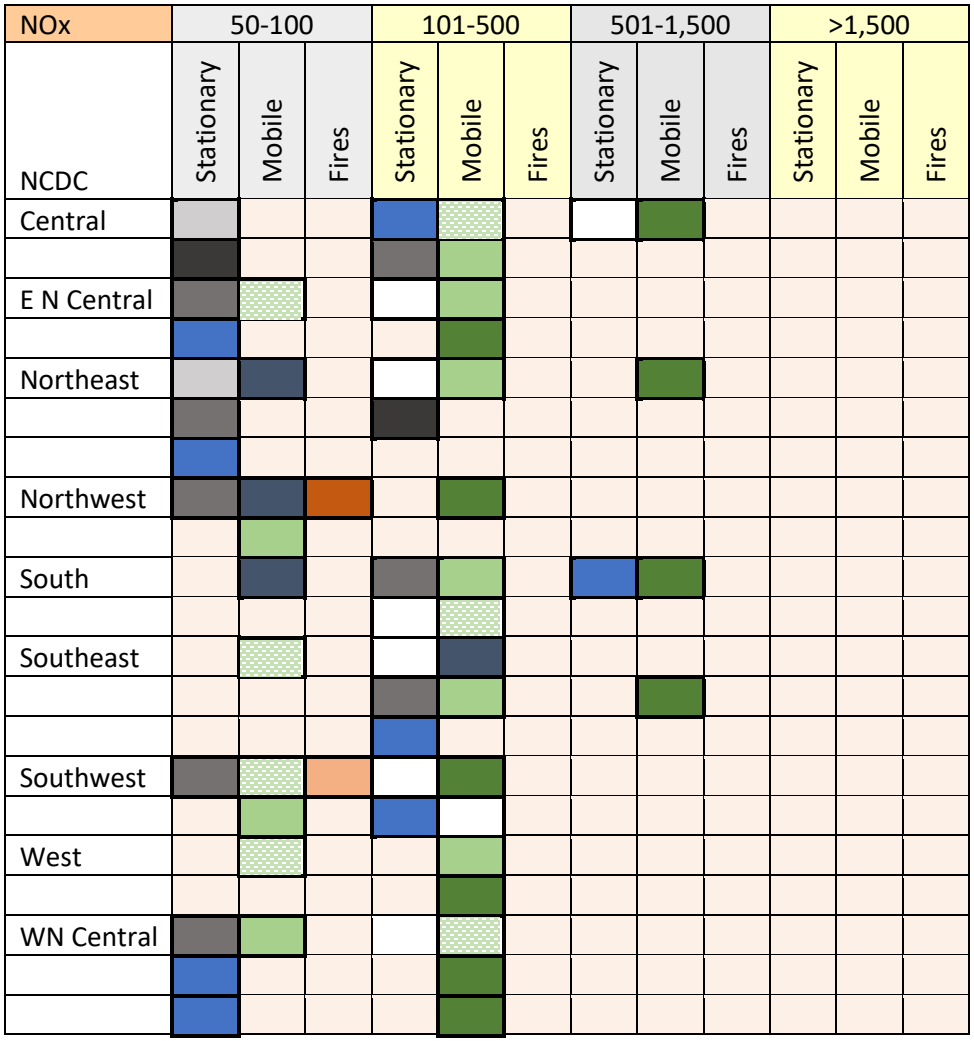
The NH_3 regional profile in Figure 8c reveals the following:

- Most of the NH_3 emissions come from wildfires (in the lower emission rate bins) or the agriculture sectors (livestock and fertilizer application).
- The South and EN Central regions show the highest levels of contribution from agricultural emissions to stationary source NH_3 emissions.
- Mobile sources do not contribute more than 50,000 tons of NH_3 to any of the regions.

Color Coding (legend) for all the graphics included in Figure 8a-8e

STATIONARY SOURCES
Agriculture
Dust – Roads/ Construction
Industrial Processes
Miscellaneous
Solvents
Fuel Combustion
Commercial/Institutional
Electric Generation
Industrial Boilers
Residential
MOBILE SOURCES
Aircraft
Commercial Marine Vessels
Locomotives
Nonroad Equipment
Onroad Vehicles
FIRE SOURCES
Agriculture Field Burning
Prescribed Fires
Wildfires

Figure 8d: Emissions (1000x) source types with the largest regional contributions for NOx



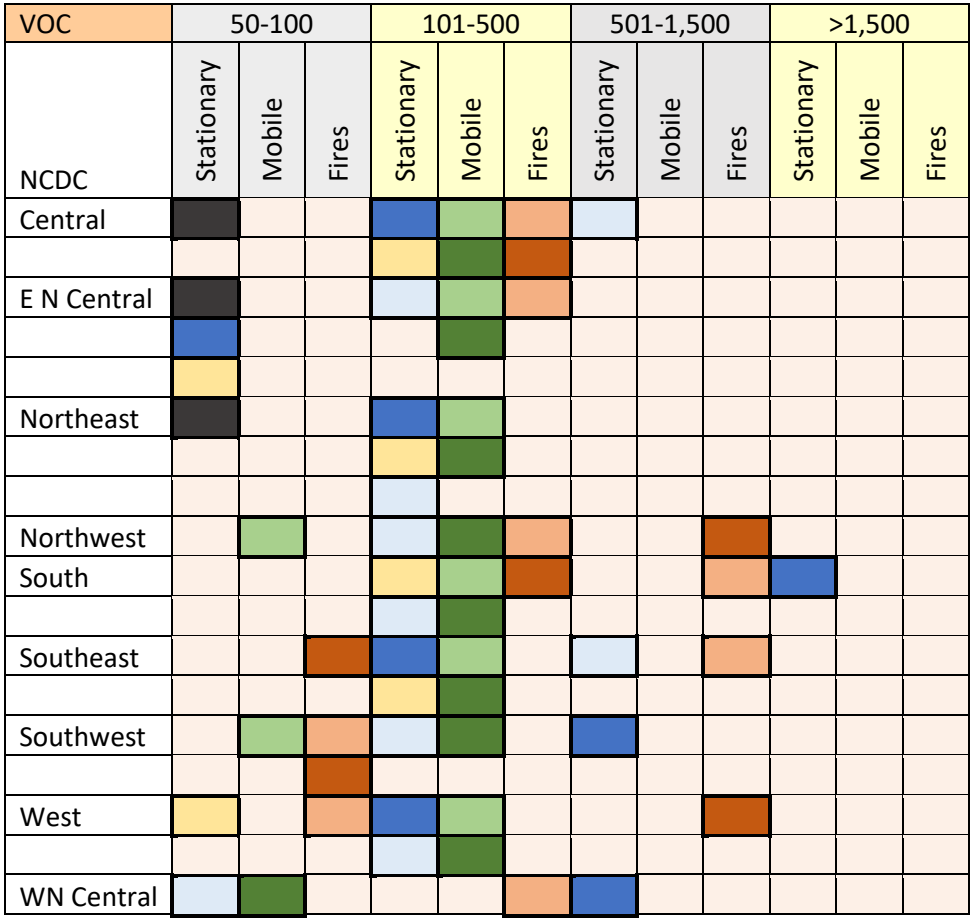
The NOx regional profile in Figure 8d reveals the following:

- At the lowest levels of NOx contribution, industrial sources and in general stationary sources, along with mobile sources and fires in the North and Southwest regions make the largest contributions.
- At intermediate levels of NOx contribution, onroad mobile sources and EGUs contribute in many regions, along with some industrial sources.
- At the largest levels of NOx contribution, onroad sources contribute the most in several regions.
- A diverse set of sectors contribute to NOx emissions in the regions.

Color Coding (legend) for all the graphics included in Figure 8a-8e.

STATIONARY SOURCES	
	Agriculture
	Dust – Roads/ Construction
	Industrial Processes
	Miscellaneous
	Solvents
	Fuel Combustion
	Commercial/Institutional
	Electric Generation
	Industrial Boilers
	Residential
MOBILE SOURCES	
	Aircraft
	Commercial Marine Vessels
	Locomotives
	Nonroad Equipment
	Onroad Vehicles
FIRE SOURCES	
	Agriculture Field Burning
	Prescribed Fires
	Wildfires

Figure 8e: Emissions (1000x) source types with the largest regional contributions for VOC



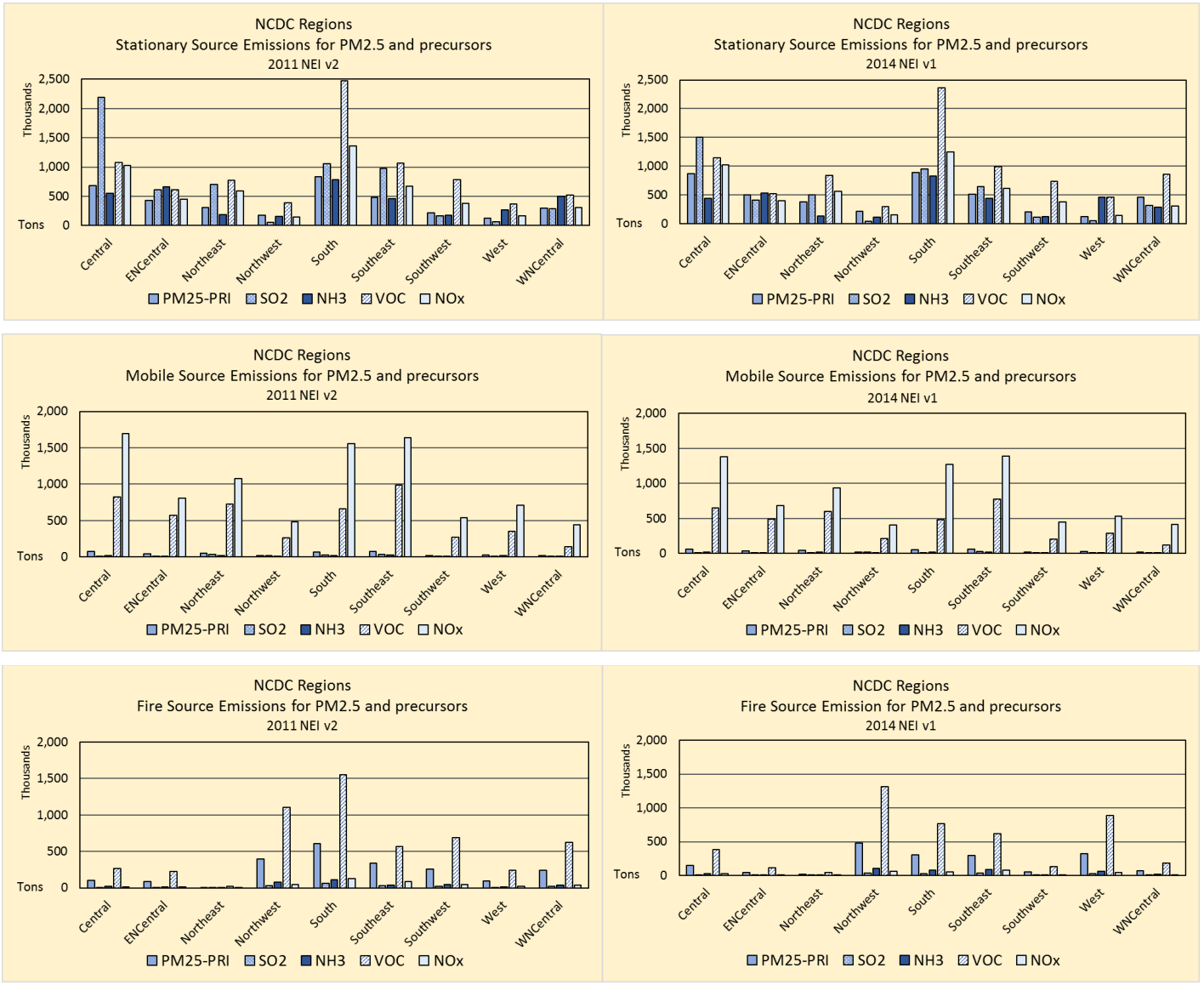
The VOC regional profile in Figure 8e reveals the following:

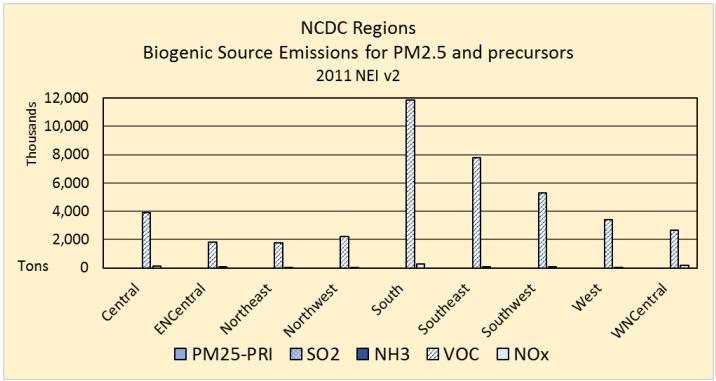
- There are a diverse set of source categories that make contributions to total anthropogenic VOC emissions from all the regions.
- Fires and mobile sources (onroad and nonroad sources) make the heavier VOC contributions. The mobile contributions are mostly from gasoline powered vehicles and nonroad equipment.
- Industrial sources in the South region contribute more than 1.5 million tons to the total VOC in that region, of which most is from oil and gas production.
- Fires are also seen to be major contributors in many regions to VOC emissions.

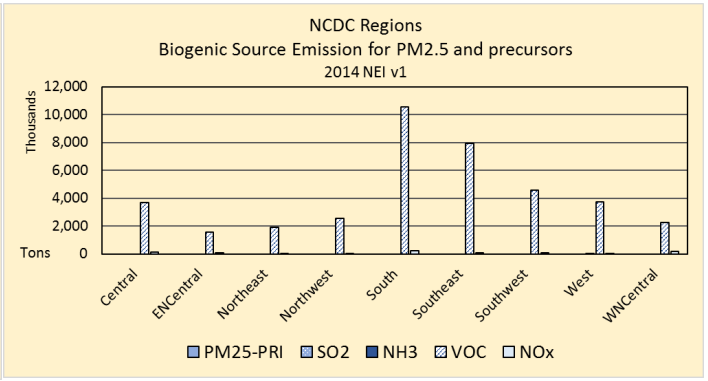
In this section, the regional analyses continue by looking at how regional emissions have changed in the 2014 NEI compared to the 2011 NEI. The charts in Figure 9 show how the emissions for $PM_{2.5}$ and all precursors, as well as select HAPs and diesel-PM (note that diesel-PM is not a HAP by definition), compare between the 2014 NEI v1 and the 2011 NEI v2. The pollutant emissions are summarized by the major source types - stationary, mobile, fires, and biogenics. The chart on the left shows 2014 emissions, and the chart on the right shows 2011 emissions. Primary $PM_{2.5}$ is shown in the charts as "PM25-PRI" and is the sum of all $PM_{2.5}$ (filterable and condensable).

Figure 9: Regional Emissions comparisons between the 2014 NEI v1 and 2011 NEI v2

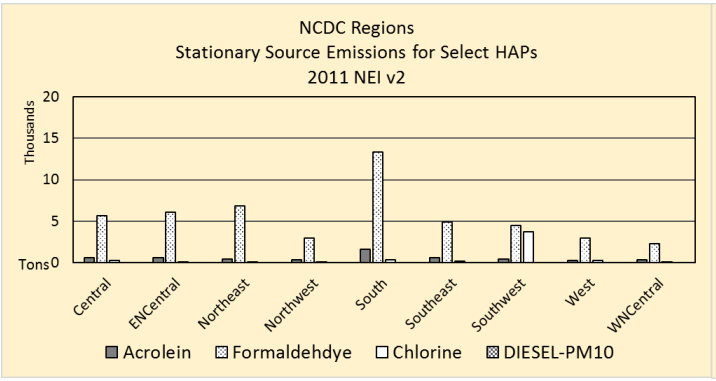
$PM_{2.5}$ and precursors

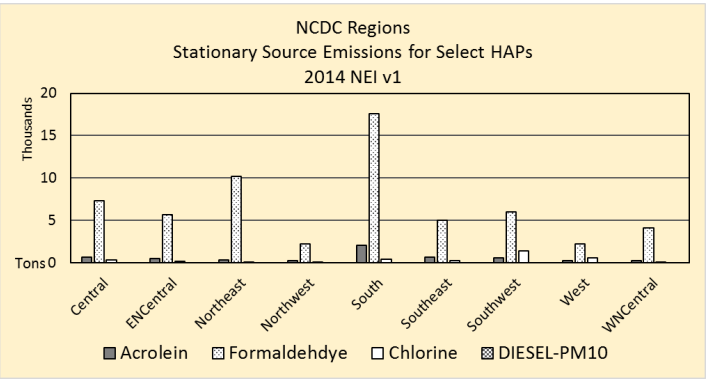


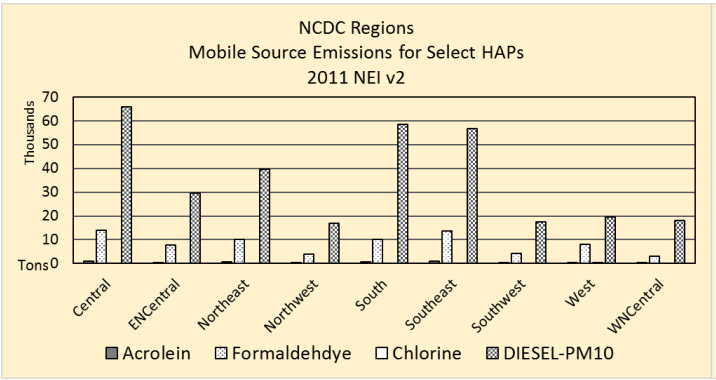


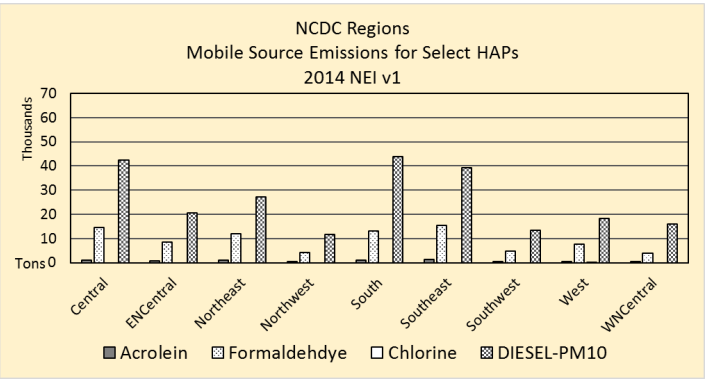


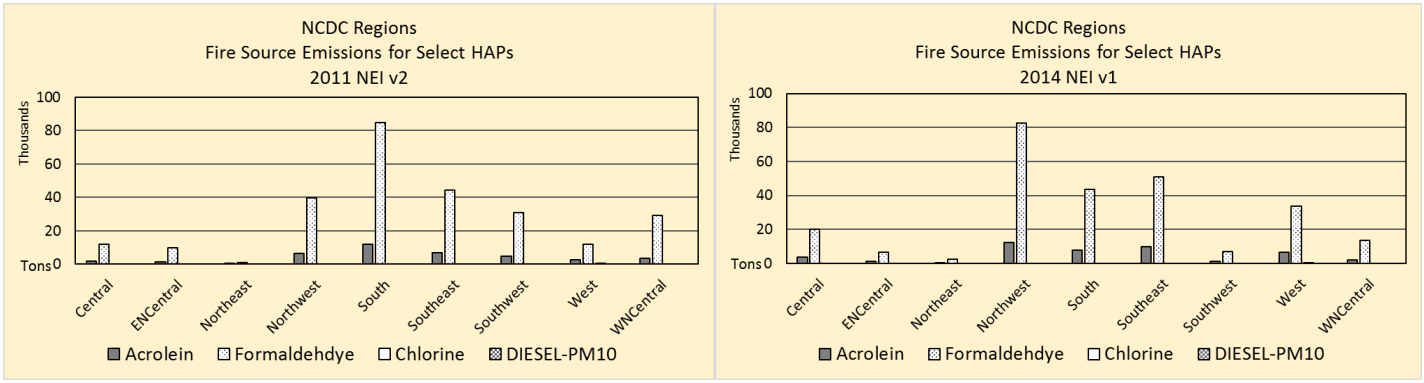
Select HAPs and Diesel-PM



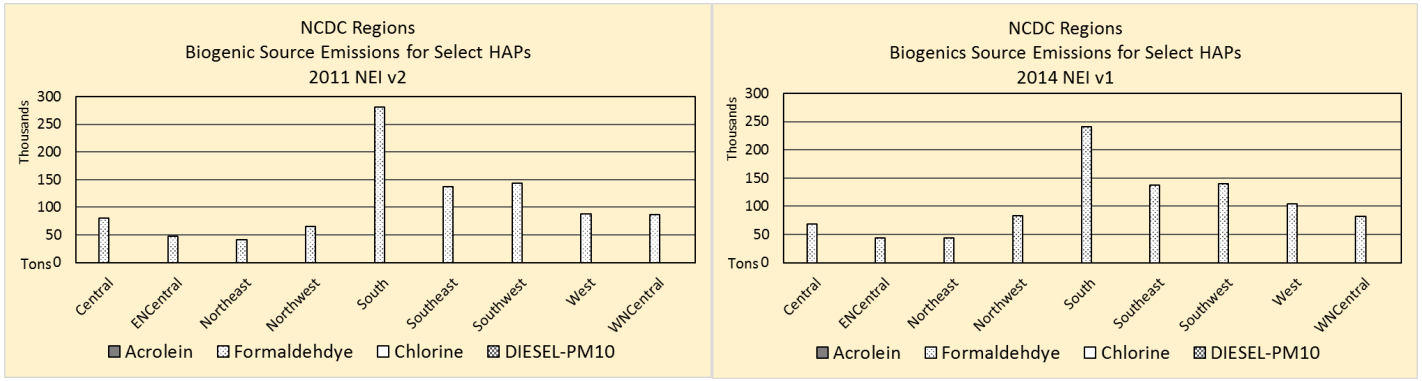








Biogenic HAP Emissions



- Some observations from the charts in Figure 9 include:
  - In most cases, 2014 emissions are lower than 2011 emissions in most regions for most source types.
  - $PM_{2.5}$ is higher for stationary sources in some regions due to a change in methodology; unpaved road dust emissions were not adjusted for weather in 2014 v1, as was done in the 2011 NEI v2 (the dust emissions adjustment will be applied for 2014 v2).
  - Of the HAPs included, only formaldehyde has a biogenic component. Lower emissions in 2014 compared to 2011 in many of the regions illustrates meteorology effects (e.g., lower average temperatures) on formaldehyde emissions.

V. Plans for 2014 NEI v2

- The 2014 NEI v1 is complete and the data are publicly available. The summaries presented in this document are based on the 2014 NEI v1 data. For more details on the data shown in this report, the reader should consult the 2014 NEI Technical Support Document (TSD) as referenced earlier.
- The 2014 NEI v2 is expected to be completed in fall 2017. Some of the expected changes/improvements/additions in going from v1 to v2 of the 2014 NEI include:

- Precipitation adjustment for road dust.
- Update emissions factors for some nonpoint sectors (e.g., residential wood combustion, industrial, commercial, and institutional (ICI) fuel combustion, solvents, oil and gas sources).
- Update nonpoint tools: activity data, minor improvements of methods (e.g., county-level sulfur content for ICI fuel combustion, mercury, oil and gas).
- Make updates to point and nonpoint sources from state/local/tribal air agencies review of 2014 NEI v1 data, including their review of the 2014 NEI v1 in the ongoing draft 2014 NATA work.
- Include new onroad and nonroad mobile model inputs for development of updated mobile source emission estimates.
- Develop final v2 documentation.

GLOSSARY OF TERMS

NEI:	National Emissions Inventory
BC/EC:	Black Carbon and Elemental Carbon, used interchangeably
BEIS:	Biogenic Emission Inventory System (Model to estimate biogenic VOC and NOx emissions)
2014 NEI:	Refers to version 1 of the 2014 NEI inventory, published October 2016
2011 NEI:	Refers to version 2 of the 2011 NEI inventory, published in 2014
NCDC:	National Climactic Data Center's definition of U.S. Climate Regions
RWC:	Residential Wood Combustion
ICI:	Industrial/Commercial/Institutional
v1:	Version 1
v2:	Version 2
TSD:	Technical Support Document
PM:	Particulate Matter
$PM_{2.5}$:	Particulate Matter 2.5 microns or less in diameter
PM_{10}:	Particulate Matter 10 microns or less in diameter
NH_3:	Ammonia
SO_2:	Sulfur Dioxide
NOx:	Nitrogen Oxides
CAPs:	Criteria Air Pollutants
HAPs:	Hazardous Air Pollutants
DPM:	Diesel Particulate Matter (PM10 emissions from mobile sources only, also called diesel-PM10)

United States Environmental Protection Agency	Office of Air Quality Planning and Standards Air Quality Assessment Division Research Triangle Park, NC	Publication No. EPA-454/R-19-006 April 2017