

State/EPA Collaboration on Emissions Inventories and Modeling Platforms for Rulemaking

NACAA Emissions
and Modeling
Committee

October 5, 2021

Purpose

- Raise awareness of the states' opportunity to collaborate with EPA on emission inventories for modeling
- Improve inventory accuracy used for modeling for federal rulemaking

Background

- MJO/State Discussions formally began in 2016 with the Fed/State Technical Work Collaboration Group
- WESTAR Comments on Air Emissions Reporting Rule (July 2021)
 - Collaboration on emissions data collection and processing
 - Timing of changes to emissions factors and activity data
 - Rule requirements vs. Options
 - Emissions estimate models should allow more customization of inputs
- Letter to EPA OAQPS (July 2021)
 - Current process to develop National modeling platforms for rulemaking is inadequate
 - Need to improve transparency by sharing draft inventories and modeling protocols
 - Allow time for state feedback
 - Better utilize state data

Response from EPA

- Conference call on August 8
 - Included Peter Tsirigotis, Director of EPA OAQPS and other EPA staff
 - EPA requested that states/MJOs suggest a revised process
- EPA Response Letter (September)
 - EPA Supports increased collaboration
 - Provided the 2016v2 emissions data and the Technical Support Document informally
 - Request feedback by December 17, 2021
- Follow-up Discussions
 - MJOs/States outlined some ways to better collaborate with EPA

Recommendations to EPA

- Start with 2016v2 inventory and modeling platform for the 2015 Ozone NAAQS interstate transport rule
- Coordinate feedback through MJOs and existing inventory groups (ERTAC-EGU, oil and gas, MOVES)
- Each MJO will work with member states to identify priorities for review of the 2016v2 data.
- The ERTAC-EGU workgroup is identifying differences between ERTAC and EPA's projections. The analysis should be available mid-October.
- Categories that are changing/growing the most are likely of most interest for review
 - WESTAR/WRAP and CENSARA will likely focus on oil and gas emissions
 - Other sectors of interest will likely be non-EGU point and onroad.
- On the last Fed/State Technical Work Collaboration Group call, EPA indicated that the 2016v2 data may be used in the near future for many purposes, some yet to be identified. This makes the effort to review the data and ensure it is the best possible data available important to all states and MJOs.
- MJOs/States should meet a couple of times (via conference call) before the December deadline to share information and review progress

What is Available for Review

- EPA Published a webpage with information on 2016v2
- <https://www.epa.gov/air-emissions-modeling/2016v2-platform>

The screenshot shows the EPA website's navigation bar with the EPA logo and search bar. The main navigation menu includes 'Environmental Topics', 'Laws & Regulations', 'Report a Violation', and 'About EPA'. The page title is 'Air Emissions Modeling' with a 'CONTACT US' link. A sidebar menu lists 'Air Emissions Modeling/Home', 'Emissions Modeling Platforms', 'Emissions Modeling Tools', and 'Training'. The main content area features the heading '2016v2 Platform' and three paragraphs of text describing the platform's updates, future projections, and technical support documents. Two bullet points at the bottom list links to the '2016v2 Technical Support Document' and '2016v2 Data Files and Summaries'.

EPA United States Environmental Protection Agency

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Air Emissions Modeling

CONTACT US

- Air Emissions Modeling/Home
- Emissions Modeling Platforms
- Emissions Modeling Tools
- Training

2016v2 Platform

The 2016v2 emissions modeling platform is being developed by EPA as an update to the 2016v1 platform because new data, model versions, and methods have become available following the release of 2016v1. The 2016v2 platform incorporates emissions based on: MOVES3, the 2017 NEI nonpoint inventory (both anthropogenic and biogenic), the Western Regional Air Partnership oil and gas inventory, and updated inventories for Canada and Mexico. In addition, 2016v2 makes use of a new inventory method for solvents, includes minor corrections to the wildfire inventory, and corrects for double counting of the airport emissions. The commercial marine vessel and rail inventories are consistent with the 2016v1 inventories.

The 2016v2 platform includes emissions for the years 2016, 2023, 2026, and 2032. Factors used to perform projections to future years have been updated where new data have become available. For example, where factors based the Annual Energy Outlook (AEO) are used to develop future year emissions, most of those factors have been updated to use AEO 2021. Future year EGU emissions include impacts from the Revised Cross-state Air Pollution Rule Update along with other updated data.

The 2016v2 platform technical support document is linked below. Additionally, key inputs to run SMOKE to compute onroad and nonroad emissions for 2016, 2023, and 2026 are available through the link to data files.

- [2016v2 Technical Support Document](#)
- [2016v2 Data Files and Summaries](#)

What is Available for Review

- Visualization: EPA will produce visual representations of the data like difference maps by county (percentage and absolute) to help with the review.

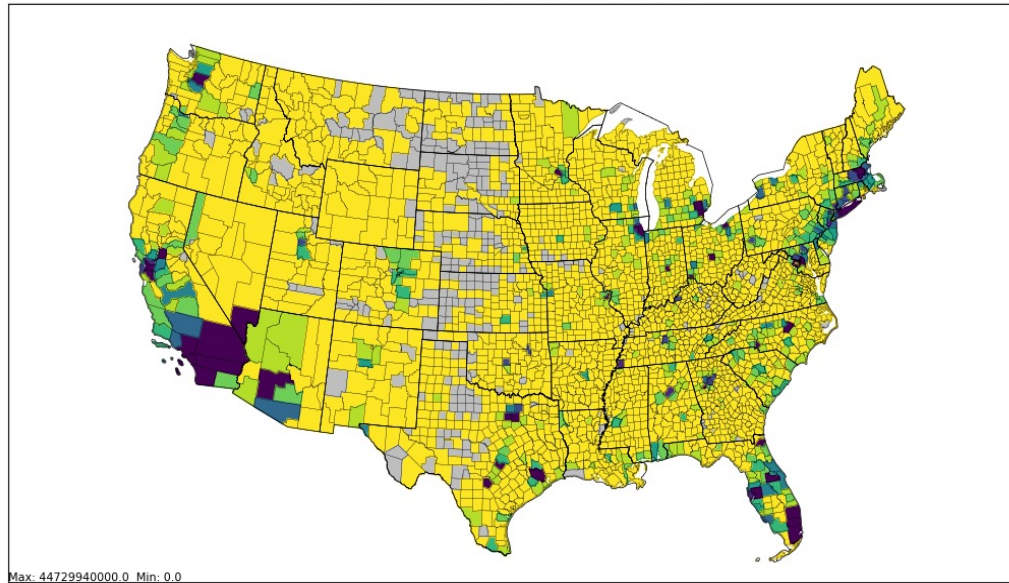
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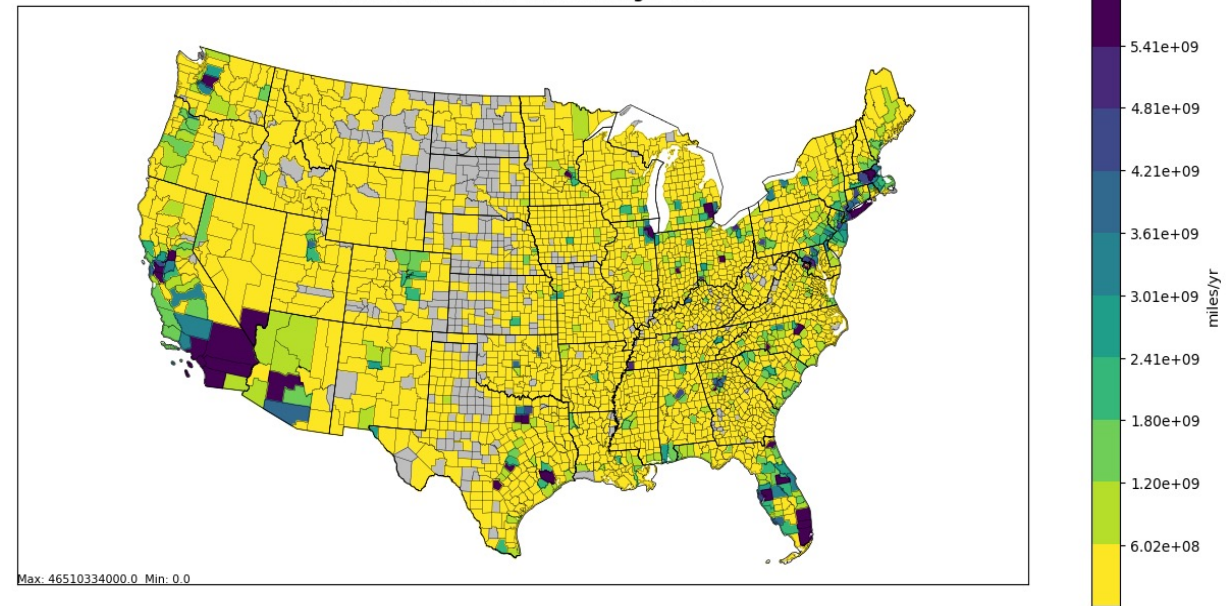
What is Available for Review

- EPA Resources

2016th onroad VMT Gas Passenger Cars



2023fh onroad VMT Gas Passenger Cars

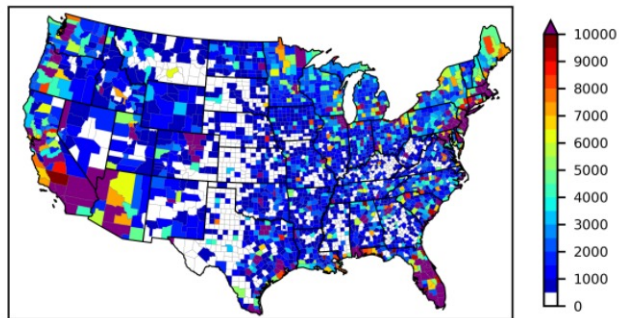


What is Available for Review

- Zac Adelman (LADCO) will coordinate with EPA to create emissions summary bar charts and other visualizations

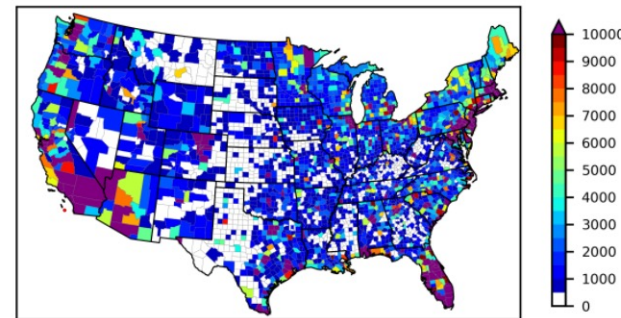
EMIS_TOTAL, Nonroad, 2016ff VS 2023ff, CO, Annual

2016ff (Tons)



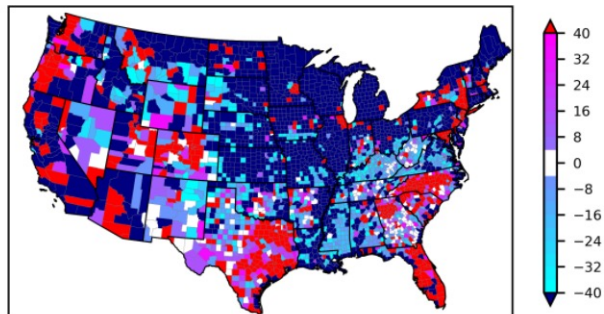
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2023ff (Tons)



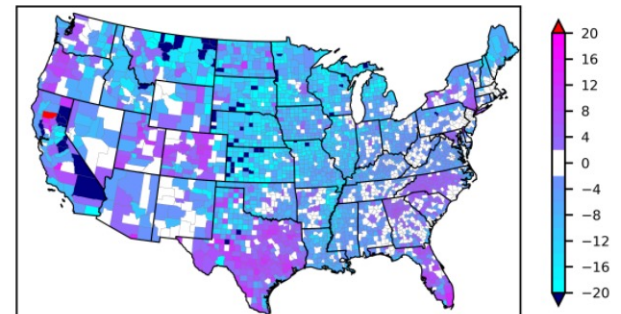
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(2023ff)-(2016ff) (Tons)



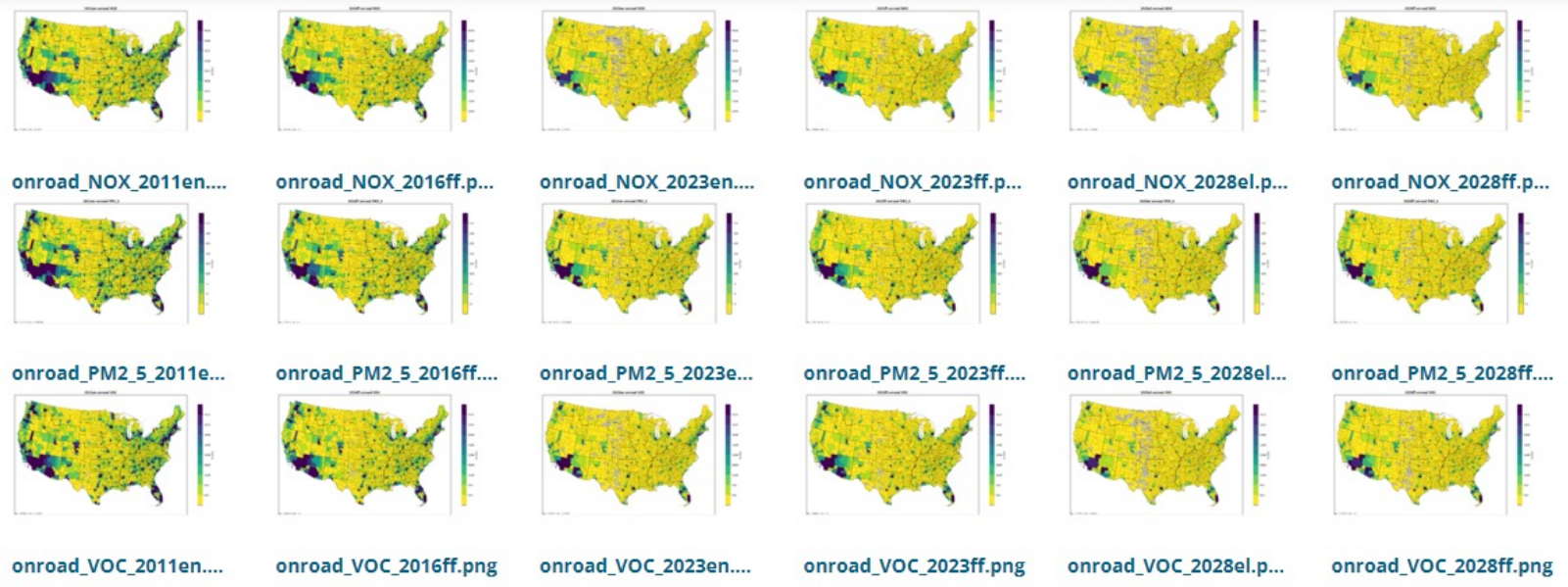
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[(2023ff)-(2016ff)]/(2016ff)*100 (%)

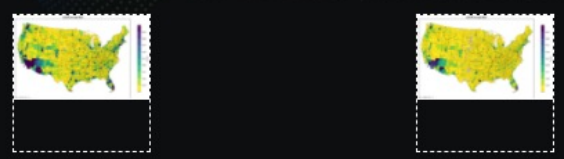


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Example: 2016v1



Drag images here to compare (click to remove)



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What is Available for Review

- Zac Adelman (LADCO) will coordinate with EPA to create emissions summary bar charts and other visualizations

- <https://views.cira.colostate.edu/iwdw/EIBrowser2016/>

IWDW Emissions Inventory Browser - 2016 EMP

This site displays emissions inventories developed by the [Inventory Collaborative](#) for the 2016 Emissions Modeling Platform (EMP). Select emissions sectors, pollutants and modeling platforms/scenarios, then press the Update button to refresh the charts and map. The tab name for the bar charts below indicates the respective chart's x-axis. The map shows either state or county emissions totals for a single platform or platform comparison. The 2016 beta platform base and future year reflect county level SMOKE reports updated on 04 April 2019. Modeling platform descriptions and instructions for using this tool are available [here](#). **Note: Biogenics are not included in beta scenarios 2023ff and 2028ff.**

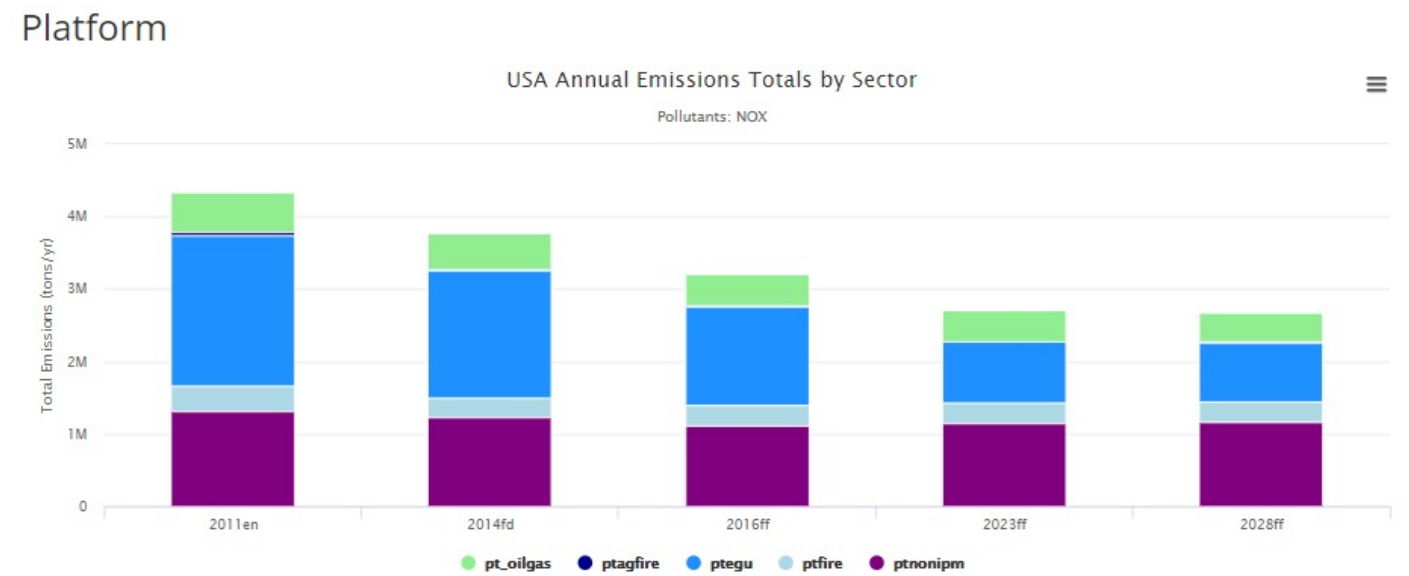
Parameters Platforms Region

Sectors - 16 Pollutants - 8 Platforms/Scenarios Comparisons Map Display

afdust CO 2011v6.3 2016ff-2011en Filter Results by Region
ag NH3 2011en 2016ff-2014fd USA
beis NOX 2023en 2016fe-2014fd
cmv_c1c2 PM10-PRI 2028el 2016ff-2016fe If the "Update" button is colored red, press it
cmv_c3 PM25-PRI 2014 NATA 2023ff-2016ff to refresh the chart and map views.
nonpt SO2 2014fd 2028ff-2016ff
nonroad VOC 2016 alpha 2023ff-2023en
np_oilgas 2016fe 2016 beta 2028ff-2028el
onroad 2016ff 2016ff
pt_oilgas 2023ff 2023ff

The buttons below update the charts and map without pressing the "Update" button.
Charts: Sum by Sectors Pollutants

Parameter Platform State County Tip: Click on a chart series legend item to add/remove the series from the chart.



Your Next Steps

- **Get involved in existing work groups: ERTAC, oil and gas, MJO MOVES**
- **Review data available and provide feedback to your MJO**
- **Contact your MJO**
- **Provide comments on draft 2016v2 inventory by December 17th**

[EPA SLIDES]

2016v2 Data Release

September 21, 2021

[EPA SLIDES]

2016v2 Release Overview

- Main Location:
<https://www.epa.gov/air-emissions-modeling/2016v2-platform>
- Components:
 - Technical Support Document
 - Data files for 2016, 2023, 2026, and 2032
 - <https://gaftp.epa.gov/Air/emismod/2016/v2/>
 - **20xxemissions**: SMOKE inputs by inventory category in (e.g., point, nonpoint, nonroad)
 - **Spatial surrogates** (36km, 12km, 4km) and **ancillary data** also included
 - Scripts to run SMOKE to prepare emissions (adding CAMx conversion late this week)
 - 2016v2_info... txt file replaces README for running SMOKE (due to https://gaftp)
 - Summaries
 - <https://gaftp.epa.gov/Air/emismod/2016/v2/reports>
- Future year EGU information
 - <https://www.epa.gov/airmarkets/epas-power-sector-modeling-platform-v6-using-ipm-summer-2021-reference-case>

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Types of Summaries included

- US inventory state + national summaries (2016v1 + 2016v2)
- US inventory state + SCC summary (2016v1 + 2016v2)
- County + sector for all 2016v2 cases
- County + monthly summaries (zipped .csv files)
- Multi-year facility summaries with known control IDs
 - 2017 through 2019 taken from EIS
 - 2016, 2017, 2018, 2019, 2023
 - Note that controls listed for 2023 are pulled forward from 2016
 - Controls submitted through the 2017-2019 NEI processes are included / known by EPA
- Onroad summaries of activity data, emissions and other relevant info
- Control Strategy Tool (CoST) summaries for projections
 - Inputs to CoST (as zip and in sector-specific projection_factors spreadsheets)
 - Summaries from running CoST for 2023 and 2026 (together) and 2032

[EPA SLIDES]

General overview by sector

- ptegu: minor updates from 2016v1
- pt_oilgas: Includes WRAP inventory – otherwise minor updates
- np_oilgas: Includes WRAP inventory + run of 2017 NEI tool for CY2016
- airports: reflects corrections to 2017 NEI (released summer 2020)
- ptnonipm: minor updates from 2016v1; some new control info
- beis: updated with 2017 NEI land use and emission factors
- cmv: unchanged from 2016v1, but new years added
- onroad: based on MOVES3 with 2017 NEI-based inputs [retained most 2016v1 activity submissions]
- nonroad: based on MOVES3 [very similar to 2016v1]
- afdust: updated to backcast from 2017NEI

[EPA SLIDES]

Notes by Sector (ctd)

- rail: unchanged from 2016v1, but new years added
- solvents: new sector based on K. Seltzer methods; removed overlap with ptnonipm and nonpt
- rwc: from 2017 NEI
- ptagfire: same as 2016v1
- ptfire: minor corrections from 2016v1 (split into wild and rx)
- ptfire_othna: same as 2016v1
- fertilizer: updated with a new run of CMAQ
- livestock: 2017 NEI backcast to 2016
- Canada: updated to new 2016 inventories
- Mexico: updated for point, nonpoint, nonroad; onroad the same

[EPA SLIDES]

Notes on Data Review

- Send questions and comments to emissionsmodeling@epa.gov for everything but future year EGUs
 - Data files small enough to email can also be sent
- Future year EGU comments / questions should be sent to <https://www.epa.gov/airmarkets/forms/power-sector-modeling-contact-form>
- Comments requested by December 17, 2021
- If you find additional summaries would be helpful for the review, email Alison Eyth and emissionsmodeling@epa.gov
- Interim questions / discussion are encouraged at WG meetings
- Information on how/whether state & regional rules can be reflected in the inventories is encouraged
- Feedback on TSD is welcome (typos, unanswered questions, etc.)