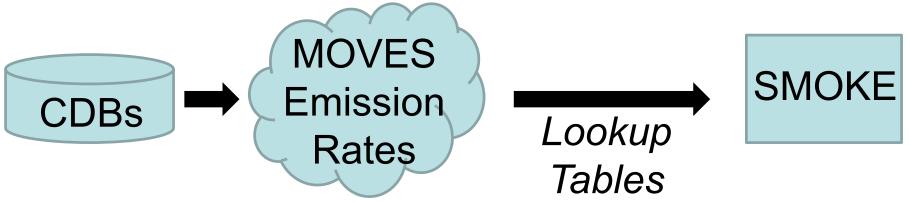# Collaboration to Improve the On-Road 2017 NEI

Allison DenBleyker and Meredith Weatherby
ERG

Alison Eyth, Sarah Roberts, and Laurel Driver
U.S. EPA

U.S. EPA 2019 Emissions Inventory Conference
Dallas, Texas

National Emissions Inventory (NEI)

- 3-year cycle
- All pollutants
- All sectors
- All counties
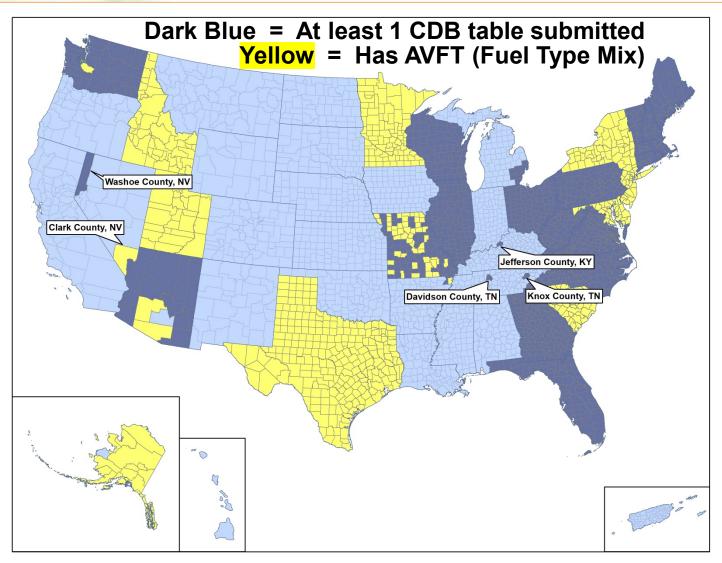- For on-road sector, states can submit MOVES county databases (CDBs)

CDBs → MOVES Emission Rates → *Lookup Tables* → SMOKE

What's inside a CDB?

- Vehicle-Miles Traveled
- Temperature & Humidity
- **Vehicle Population**
- **Vehicle Age Distribution**
- **Fuel Type Mix**
- Fuel Properties/Market Shares
- Average Speed Distribution
- Road Type Distribution
- VMT Fractions
- I/M Compliance/Waiver Rates

State Agency Submittals

⬍

IHS-Polk Nationwide Coverage

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Who submits data?

Dark Blue = At least 1 CDB table submitted
Yellow = Has AVFT (Fuel Type Mix)

Washoe County, NV
Clark County, NV
Jefferson County, KY
Davidson County, TN
Knox County, TN

Counties:

- 1,693 CDBs
- 1,515 Age
- 654 AVFT

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CRC A-115 Data Purchase

- IHS-Markit (formerly Polk)

- July 1, 2017 data pull
  - Population by MOVES source type
  - All U.S. counties
  - Model years 1961-2018
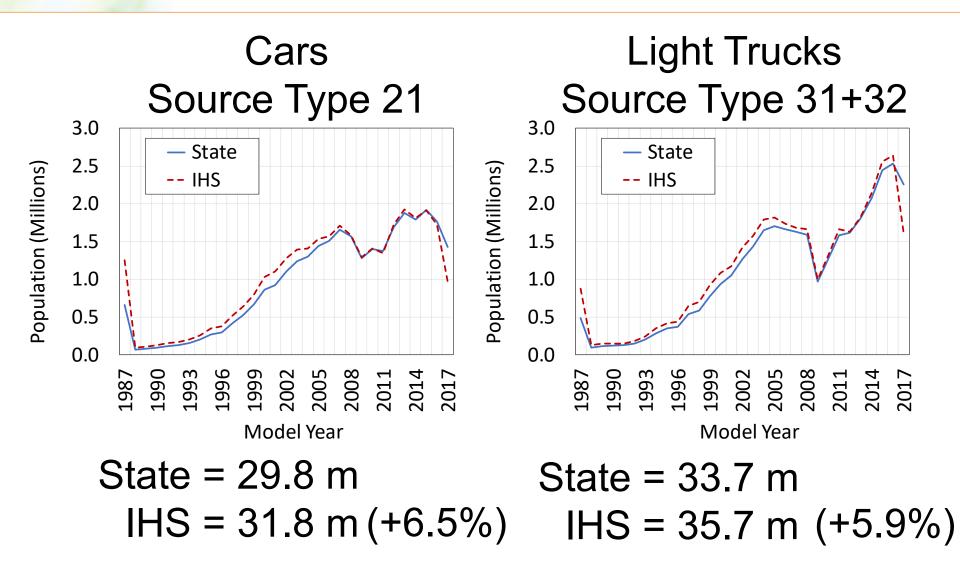 - 13 million motorcycles, 271 million light duty, and over 8 million heavy duty vehicles

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CRC A-115 Data Analysis

- Calculated MOVES inputs for NEI

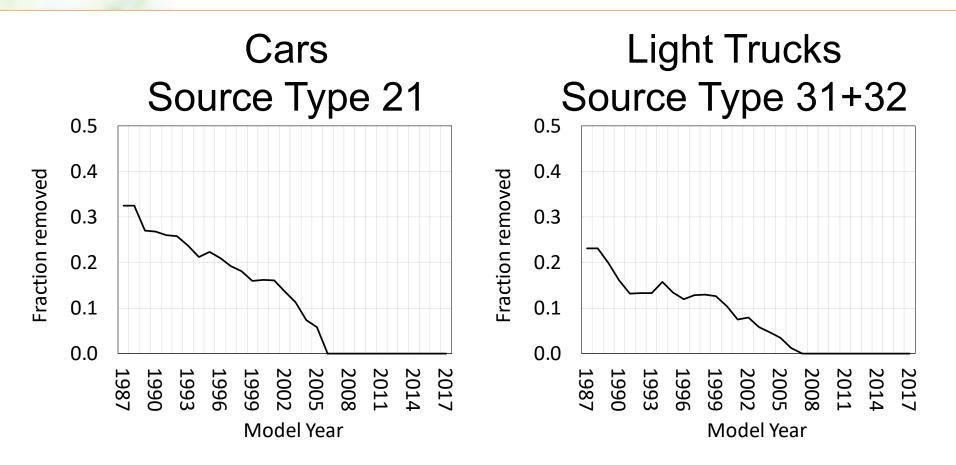- Can we learn anything from 2014 that can improve the 2017 NEI?

- The VIN decode group
  - DMV → Local/State Air Agency
  - DMV → IHS-Markit

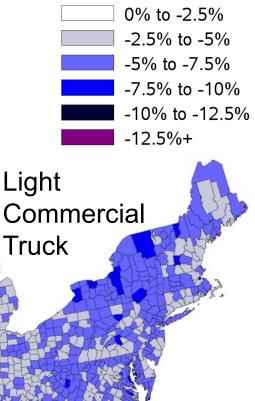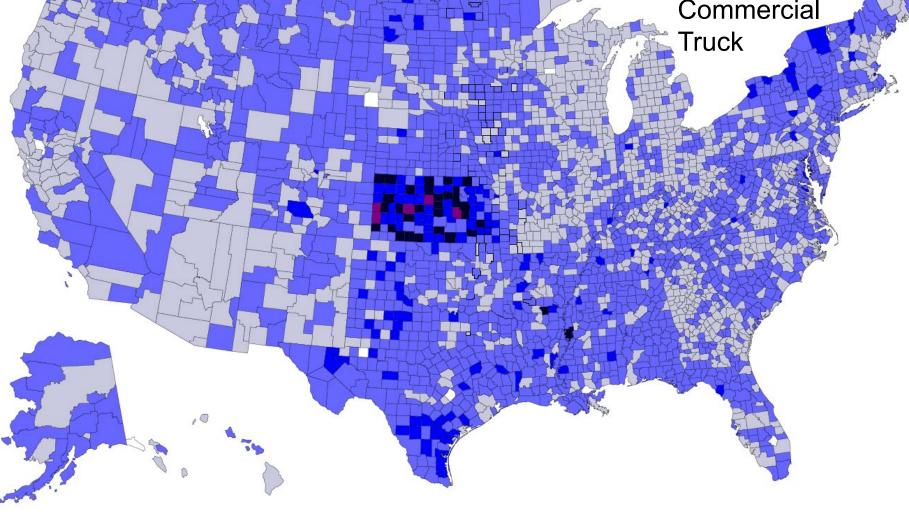# IHS light-duty vehicle count higher than States by ~6%

Cars
Source Type 21

State = 29.8 m
IHS = 31.8 m (+6.5%)

Light Trucks
Source Type 31+32

State = 33.7 m
IHS = 35.7 m (+5.9%)

Adjustment to IHS for the NEI by vehicle, age
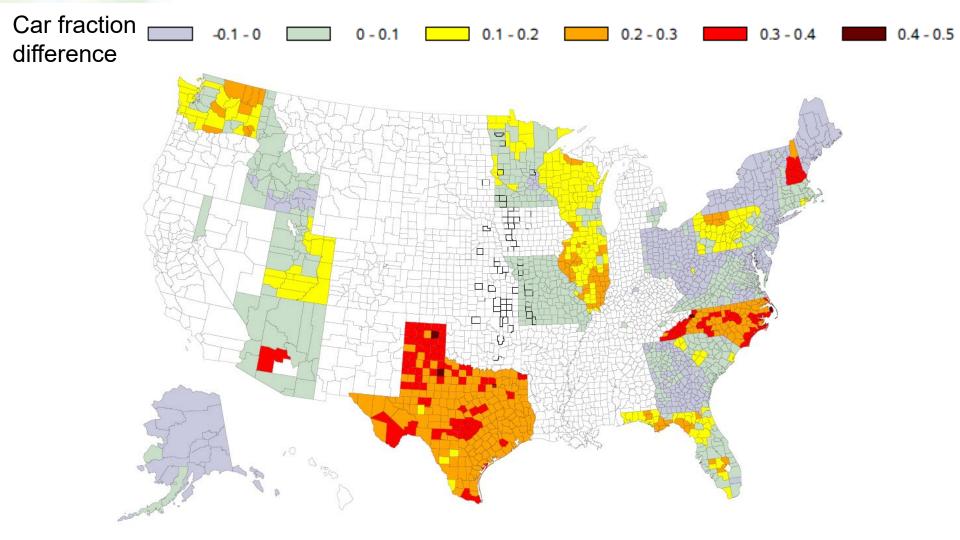
Cars
Source Type 21

Light Trucks
Source Type 31+32

In addition, removed all LDVs flagged as "antique."

Reduction in IHS vehicle age from adjustments, no antiques

Light Commercial Truck

Legend:
- 0% to -2.5%
- -2.5% to -5%
- -5% to -7.5%
- -7.5% to -10%
- -10% to -12.5%
- -12.5%+

Cars vs. Light Trucks
Difference = States - IHS

Car fraction difference

| | -0.1 - 0 | | 0 - 0.1 | | 0.1 - 0.2 | | 0.2 - 0.3 | | 0.3 - 0.4 | | 0.4 - 0.5 |

Outliers in the IHS Data

- Light commercial trucks with 35-65% of the vehicles are brand new

- Excluded these county outliers in the grouping of age distributions by representative county

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Summary

- IHS-Polk data from CRC A-115 provides nationwide coverage

- Overlap with submittals in 16 agencies
  - Consistently higher #s of older vehicles in IHS
  - Inconsistent Car vs. Light Truck splits from states

- MJO MOVES workgroup reviewed trends, spotted outliers

- Collaboration among groups has led to data improvements

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Acknowledgements

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The Multi-Jurisdictional Organization (MJO) MOVES Workgroup