

Climate, Health, Equity and Transportation



Bob Kitchen, MD
Vice-Chair of Advocacy

v.2



Virginia Clinicians for Climate Action



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Founder, Chairperson of
Steering Committee

VCCA Mission

To build a network of clinician leaders advocating for climate change solutions that protect the health of our patients and communities.



Virginia Clinicians for Climate Action

Transportation Pollution in VA

**Transportation
accounts for 48% of
Virginia's CO₂
pollution...vs 28%
Nationally.**



Transportation's Impact on Health

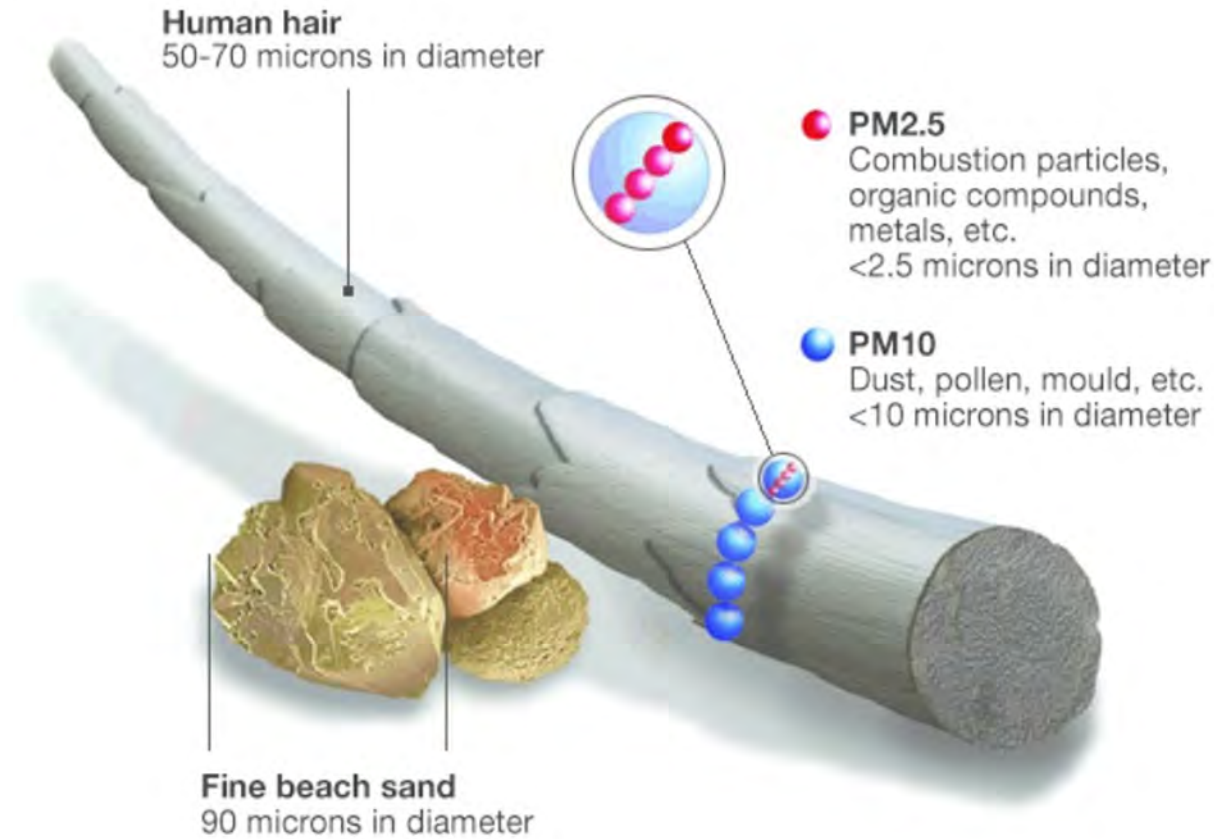
- **Respiratory diseases** such as asthma and lung disease
- **Cardiovascular diseases** such as heart attack and stroke
- **Brain health-dementia**
- Prematurity and low birth weight
- Number of hospitalizations
- Number of premature deaths
- Lost work days

Transportation's Impact on Health

Those at greater risk

- children
- older adults with preexisting respiratory diseases
- people who work and exercise outdoors
- people who live in close proximity to highways and interstates
- individuals without access to needed health care

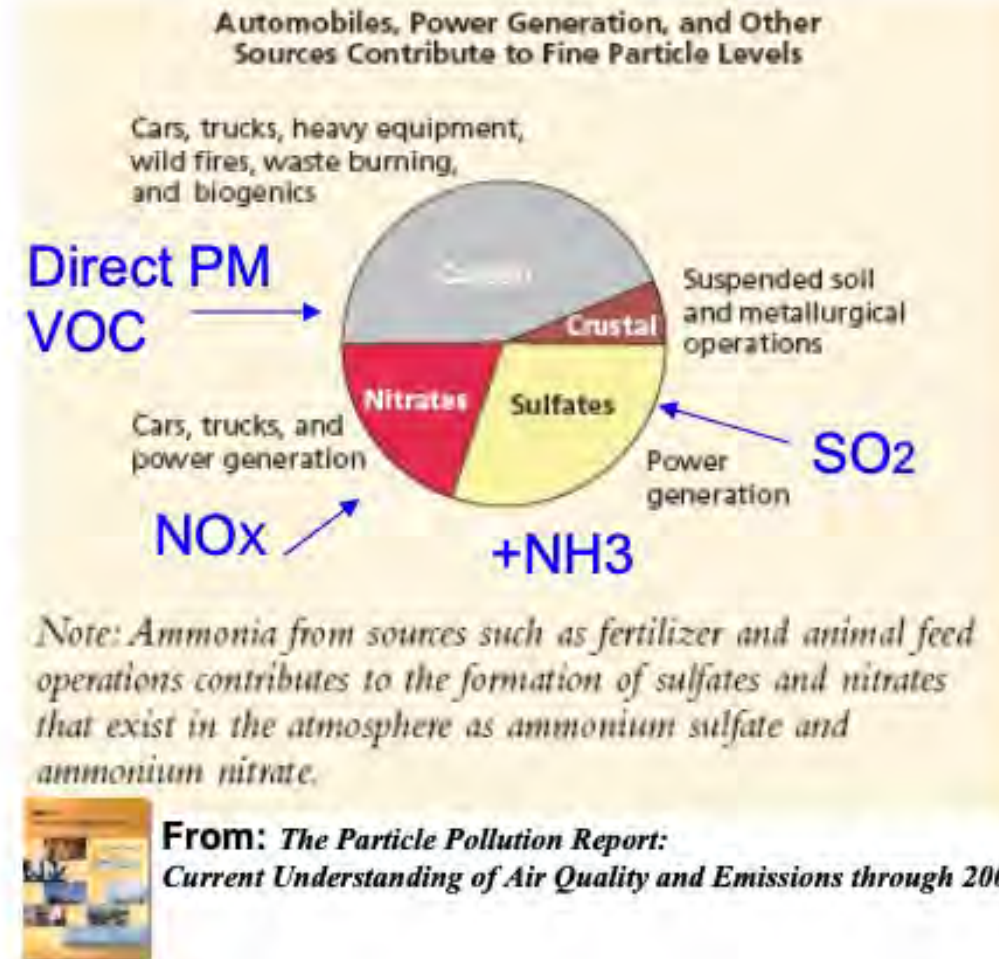
Particulate Matter (PM_{2.5})



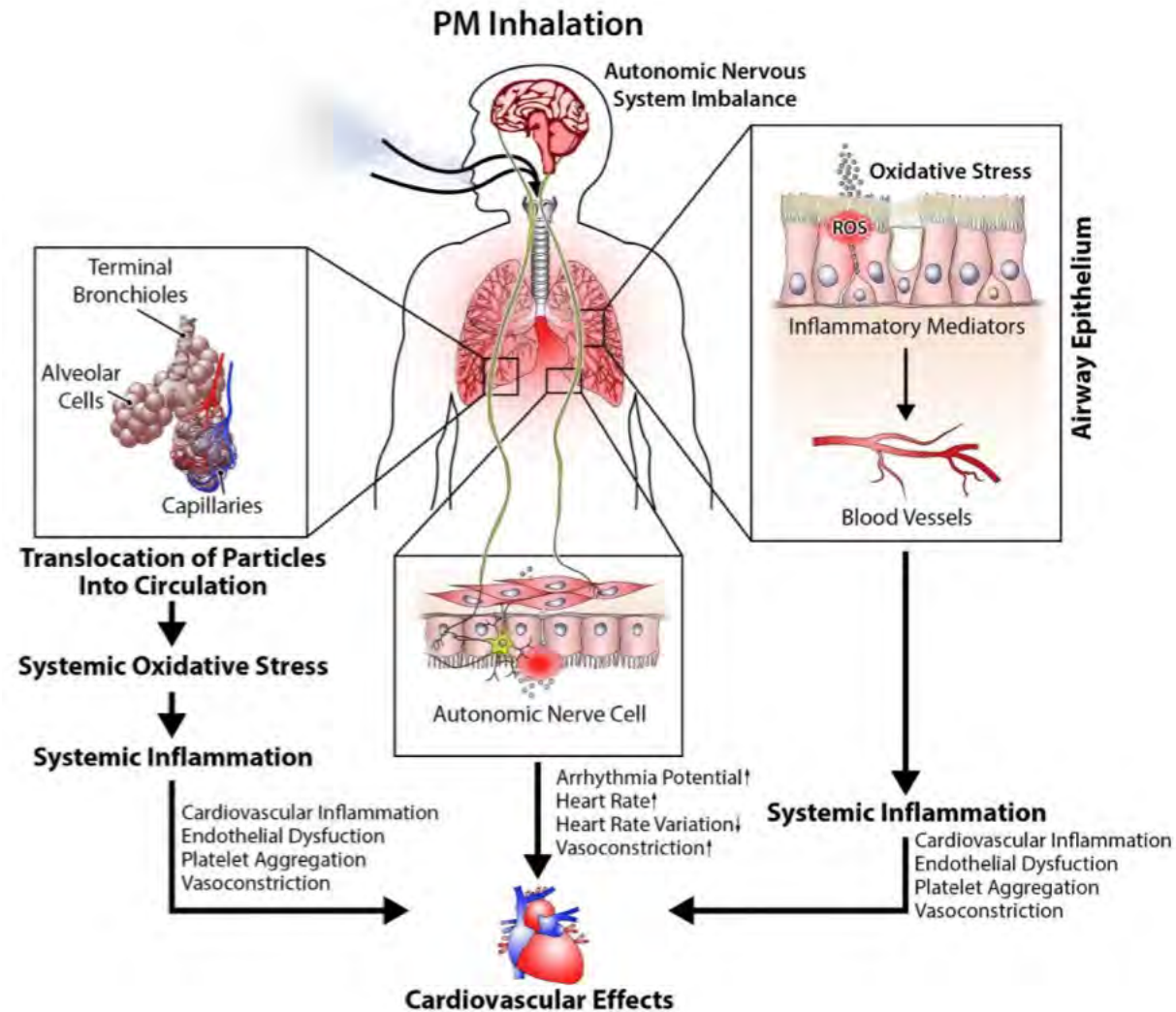
Particulate Matter (PM_{2.5})

Major components

- Ammonium Sulfate
- Ammonium Nitrate
- Organic Carbonaceous Mass
- Elemental Carbon
- Crustal Material



PM 2.5 Mechanism of Injury



VCCA Transportation Report

An Assessment of the Health Burden of Ambient PM2.5 Concentrations in Virginia

Virginia Clinicians for Climate Action

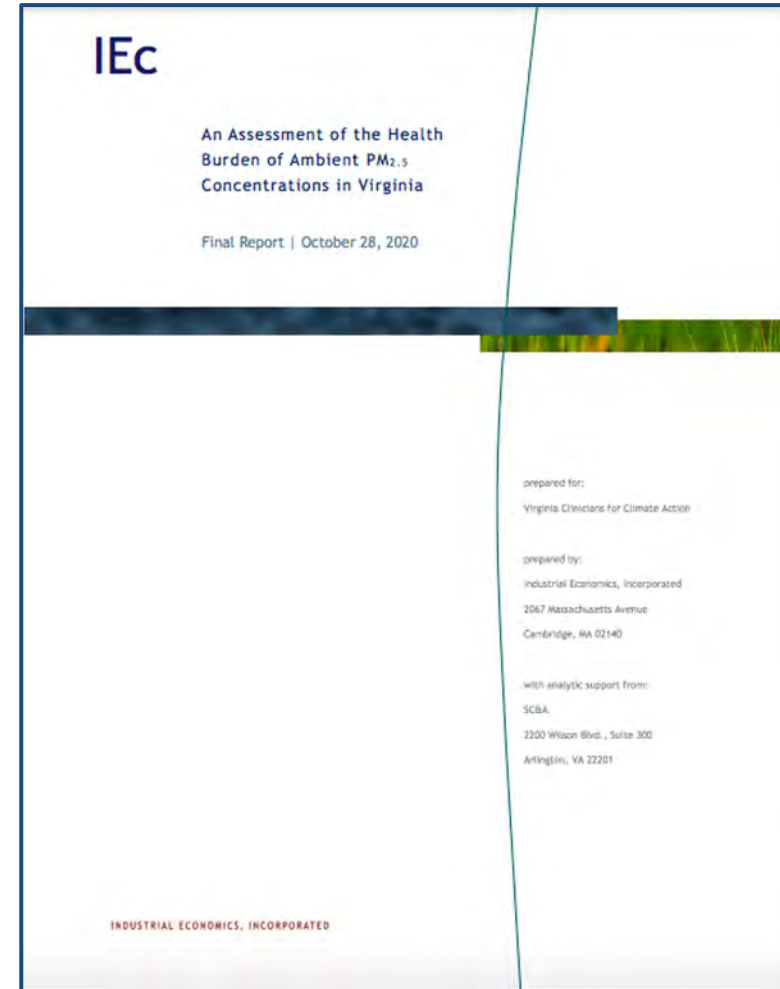
and

The Energy Foundation

October 20, 2020

VCCA Transportation Report

The health burden includes the number of premature mortalities, hospital admissions, ED visits, and other illnesses associated with PM levels, and how these are distributed among vulnerable communities in the state.



Impact of All PM_{2.5} In Virginia

Sources:

- Transportation/Motor vehicles
- Burning of wood, heating oil, coal
- Forest and gas fires
- Indoor: Cooking, tobacco smoke, fireplaces, space heaters

VA Health Impacts:

3,000 deaths

2,200 non-fatal heart attacks

7,000 new asthma cases

360,000 lost work days

- These health-associated **costs are valued at \$23 billion dollars annually.**

Impact of All PM_{2.5} In Virginia

Large portions of these conditions involve children:

7,000 cases of new onset asthma in children and women

119,000 cases of bronchitis & other respiratory symptoms

230,000 asthma attacks



Transportation Report: Transportation including U.S. Highways

- Air pollution from all vehicles (*including from out of state*) cause the following health impacts in Virginia:

190 deaths

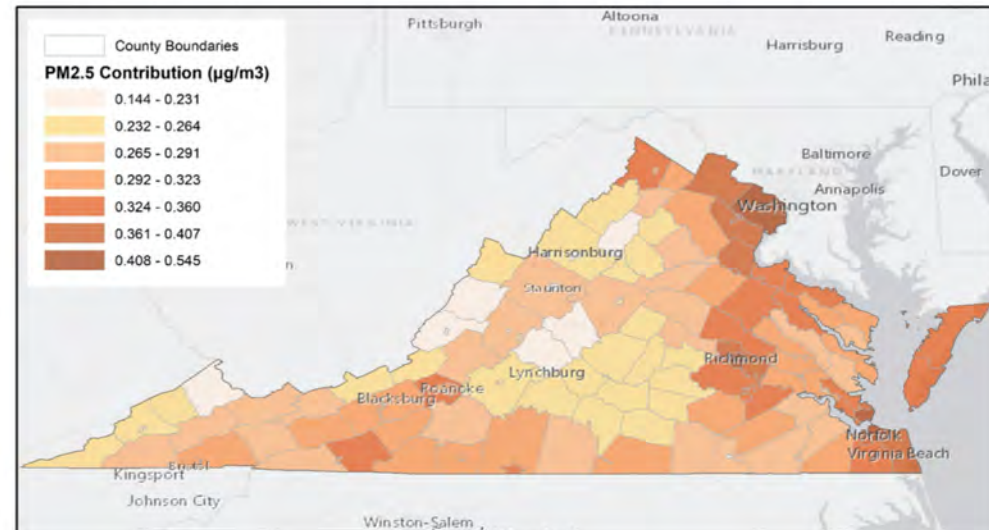
150 non-fatal heart attacks

450 new asthma cases

21,000 lost work days

- These health-associated **costs are valued at \$1.6 billion dollars annually.**

EXHIBIT 6. PM_{2.5} CONCENTRATIONS ATTRIBUTABLE TO U.S. HIGHWAY VEHICLE EMISSIONS



Transportation Report: VA Specific Transportation

- PM_{2.5} from “Virginia specific” transportation causes:

92 deaths

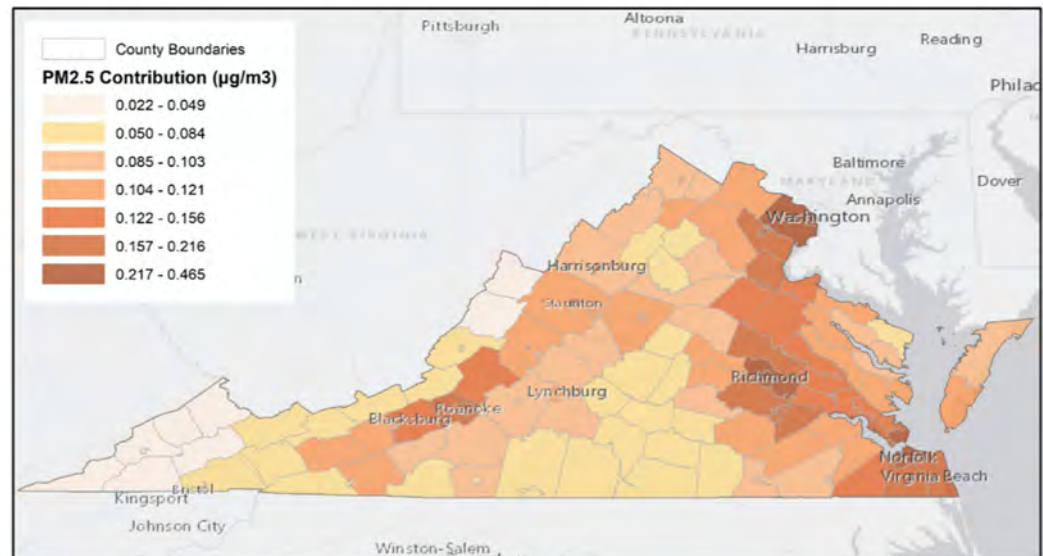
71 non-fatal heart attacks

220 new cases asthma

10,000 lost work days

- These health-associated **costs are valued at \$750 million dollars annually.**

EXHIBIT 8. PM_{2.5} CONCENTRATIONS ATTRIBUTABLE TO VIRGINIA HIGHWAY VEHICLE EMISSIONS



Transportation Report: Social Vulnerability

- Socially vulnerable populations experience **61% higher death rates** in Virginia due to air pollution.
- The CDC defines **social vulnerability** as being impacted by factors including
 - socioeconomic status
 - household composition
 - disability
 - minority status and language
 - housing type
 - transportation options

EXHIBIT 3. 2018 SVI BY CENSUS TRACT

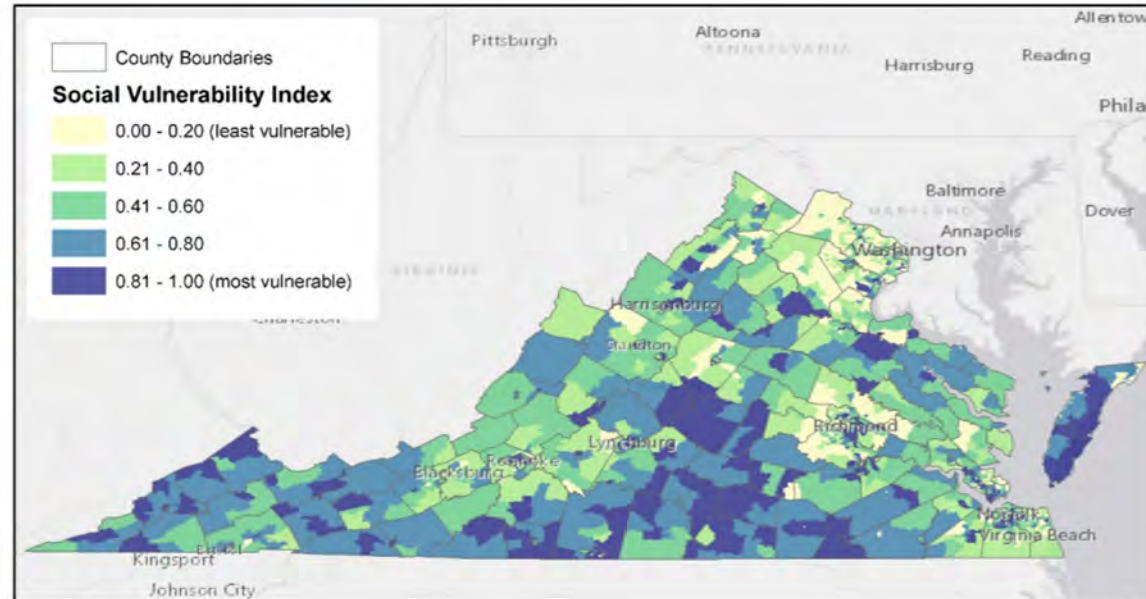
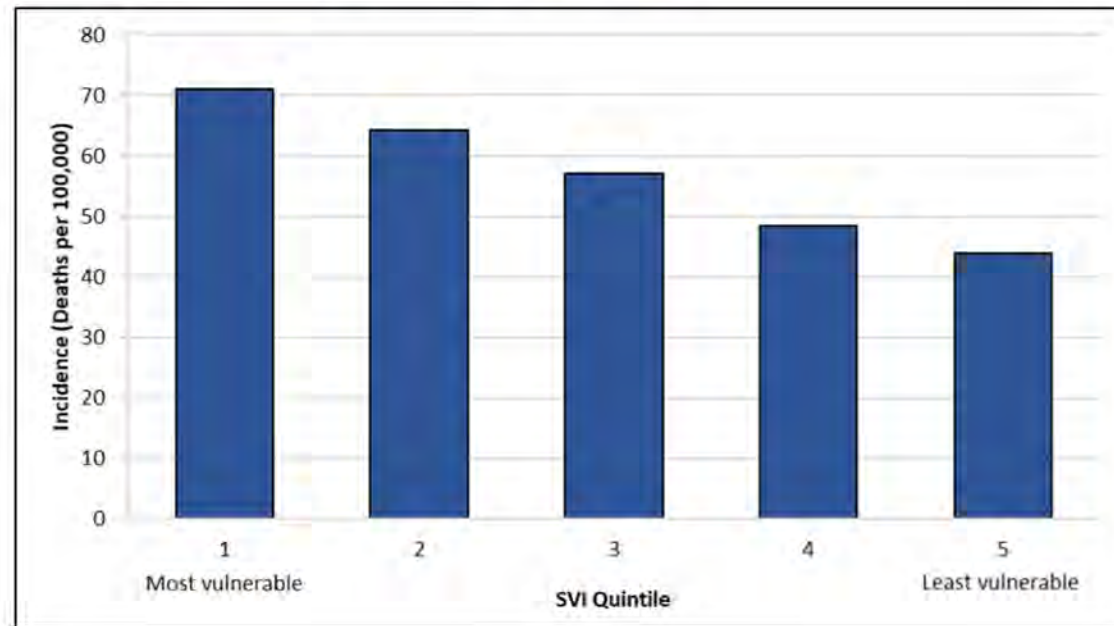


EXHIBIT 4. AIR POLLUTION RELATED DEATHS BY SVI QUINTILE



2035 Benefits with ZEV Program (w/VCEA)

Annual decrease in...

- Mortality by 11 (92)
- Non-fatal MIs by 6.6 (71)
- New cases of asthma by 18 (220)
- Lost work days by 760 (10,000)

Transportation Report: Climate/Economic Benefits of LEV

Adoption of the LEV standard is projected to:

- Reduce CO2 emissions by **5.6 million tons, or 10% in 2035.**
- Give economic benefits ranging from **\$120-\$520 million annually.**
- These benefits **may exceed \$1 billion** in lower-probability but higher-impact climate scenarios.



Advocacy

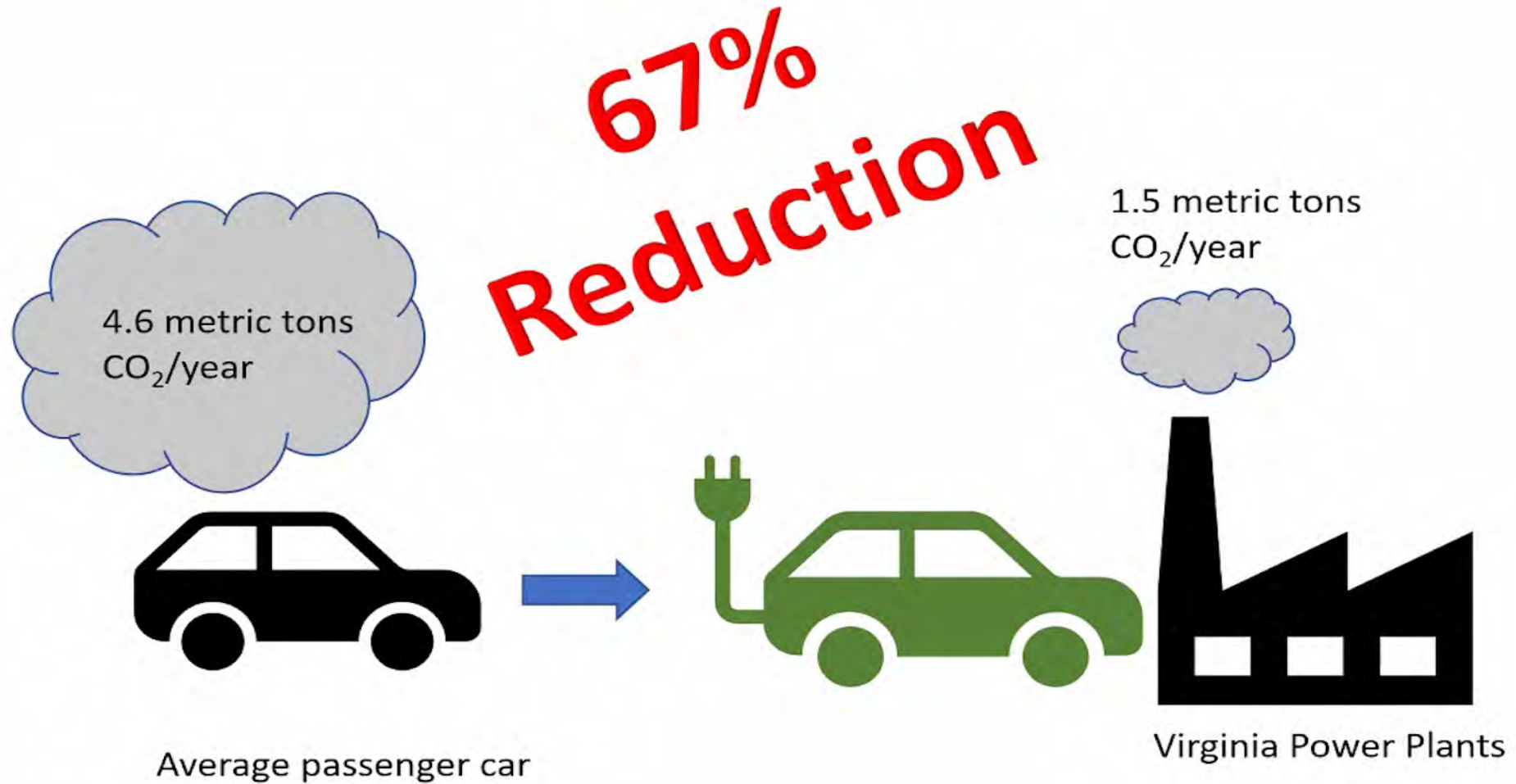


VCCA 4th Annual Advocacy Day
January 19th, 2021

Specific Legislation

- Clean Car Standards
- Electrification of School Buses
- Air Quality Monitoring (Environmental Justice Omnibus Bill)
- Fossil Fuel Infrastructure Moratorium

Advanced Clean Car Standards



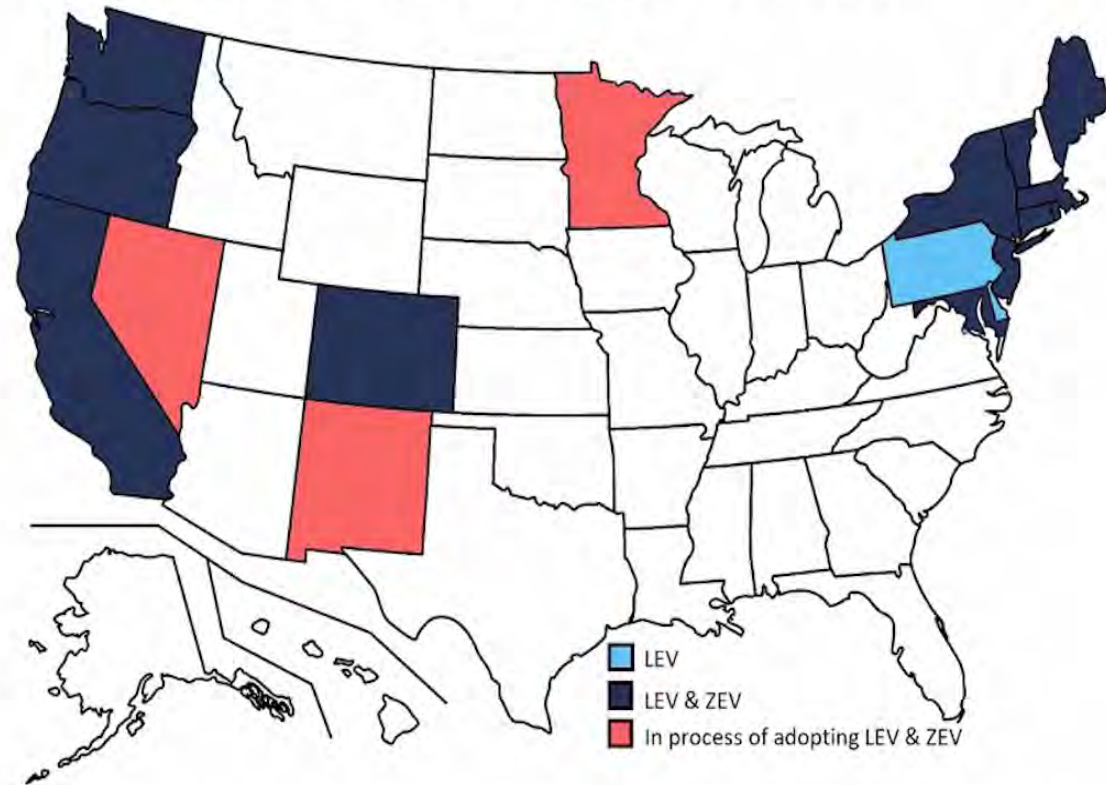
Advanced Clean Car Standards

- Rules which encompass three areas of standards for cars and trucks:
 - Air quality- limits on soot and smog-forming pollutants
 - Global warming- regulate carbon dioxide and other heat trapping gases
 - Zero-emission vehicles- require auto companies to produce ultraclean and hybrid vehicles in these states

Advanced Clean Car Standards

ZEV State = Zero Emission Vehicle Standard

- A small percent of each manufacturer's sales in a ZEV state must be zero-emissions or hybrid plug-in electric. Percent increases over time.
- Customers still have choice of conventional vehicles
- Increases customer choice and accessibility to EVs
- Manufacturers prioritize sending EVs to ZEV states over other states



School Bus Electrification



- Electric vs diesel decreases GHG's by 54k lbs/year/bus (5.2 cars)
- Air quality inside diesel bus is 5x worse than outside the bus
- The bill creates an “Electric Vehicle Grant Fund” under DEQ
- Passed and now has funding by \$20 million from VW settlement

Air Quality Monitoring (Environmental Justice Omnibus Bill)

From VCCA Transportation Report:

- “More refined air quality and incidence data may allow analysts to address potential health impacts among populations living in close proximity of roadways.”
- ALA Report Card for Virginia (2016-2018) covered 133 counties and cities
- 111 were graded “DNC” which indicated that there was no monitor collecting data in the county or city.

Fossil Fuel Moratorium

- Prior legislation put a two year moratorium on new fossil fuel electric generating plants.
- The 2021 legislation extended this to a permanent moratorium on all new fossil fuel infrastructure taking effect in 2022.



Thank You

