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The Time is Now

Marty Tufte, TTP Chair

TTP25@ACT Expo RNG Sunday Summit

Anaheim, CA

April 27, 2025

Value for TTP Members

Advocate, Educate, Collaborate

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- Advocacy on policy and regulations that impact GFVs and gaseous fuels in transport
  - Federal & state – legislation, regulations, various government agencies
- Leadership on key technology & safety issues
  - Addressing GFV deployment technical barriers
  - Modernization of codes & standards, certification/testing requirements, and safety/best practices
  - Collaboration with government & industry
  - Incident investigations & root cause analysis
  - Nine working groups led by members to address industry priorities
- Voice of a strong industry
  - Communicating the value of GFVs
  - Analysis, credible data & case studies
  - Convening industry leaders
  - One-on-one member support

South Coast Air Quality Management District Perspective

"…**we are very disappointed** by your continued campaign against the funding of NZE natural gas-fueled trucks as part of the solution needed to clean the air.

"It is a campaign that will necessarily **prolong the use of diesel trucks and sacrifices short-term emission reductions and health benefits for climate goals** decades in the future.

"It is a campaign that **falsely pits NZE and ZE technologies against each other** when an all-of-the-above approach is needed to eliminate diesel.

"It is a campaign that **misleads the public** into believing ZE heavy-duty technologies are ready to go today and that the only barrier is political will.

"Most disturbingly, it is a campaign that **plays loose with fundamental facts and science**."

- Wayne Nastri, Executive Director, SCAQMD
in an August 3, 2021, letter to 25 environmental organizations

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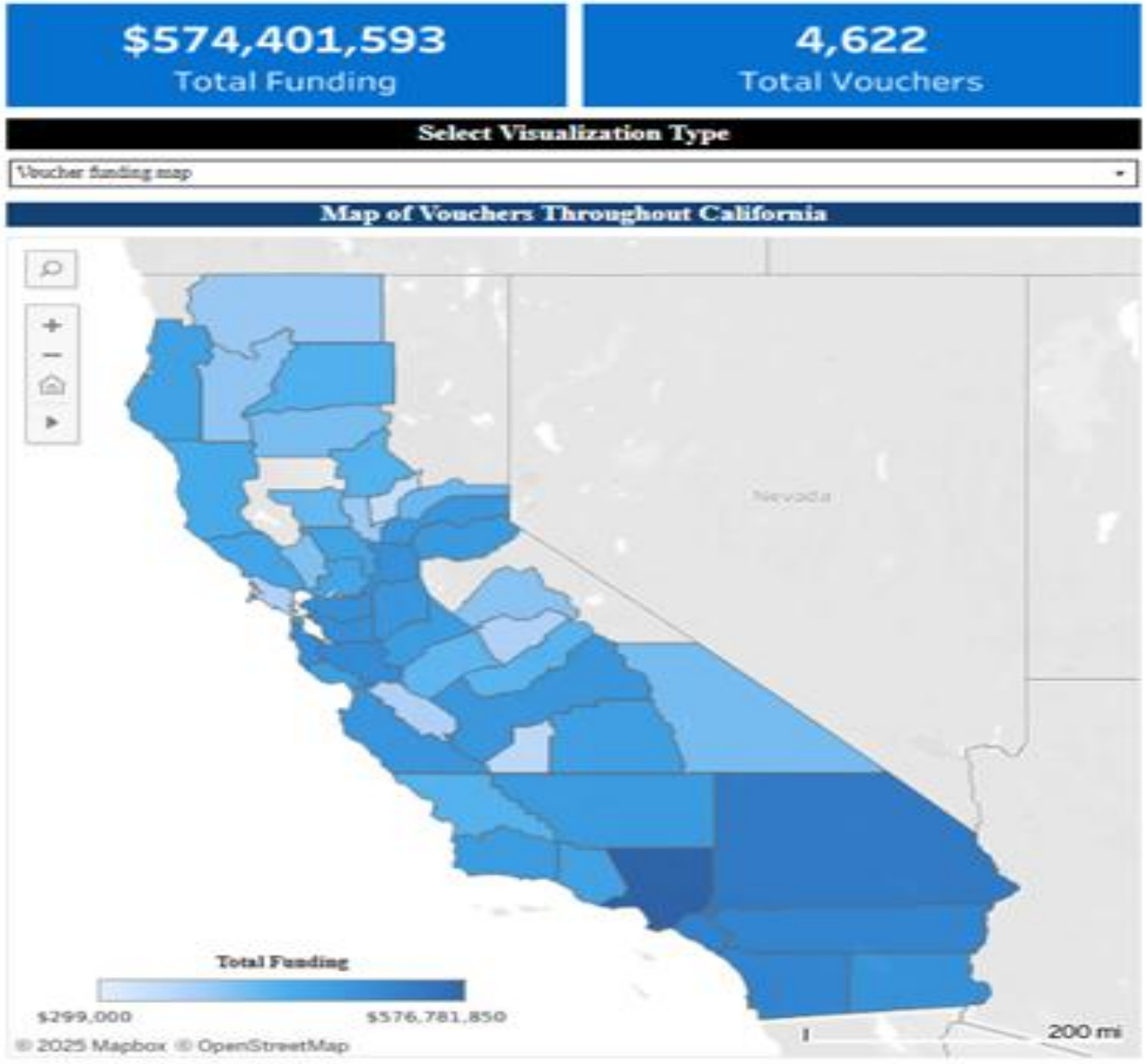
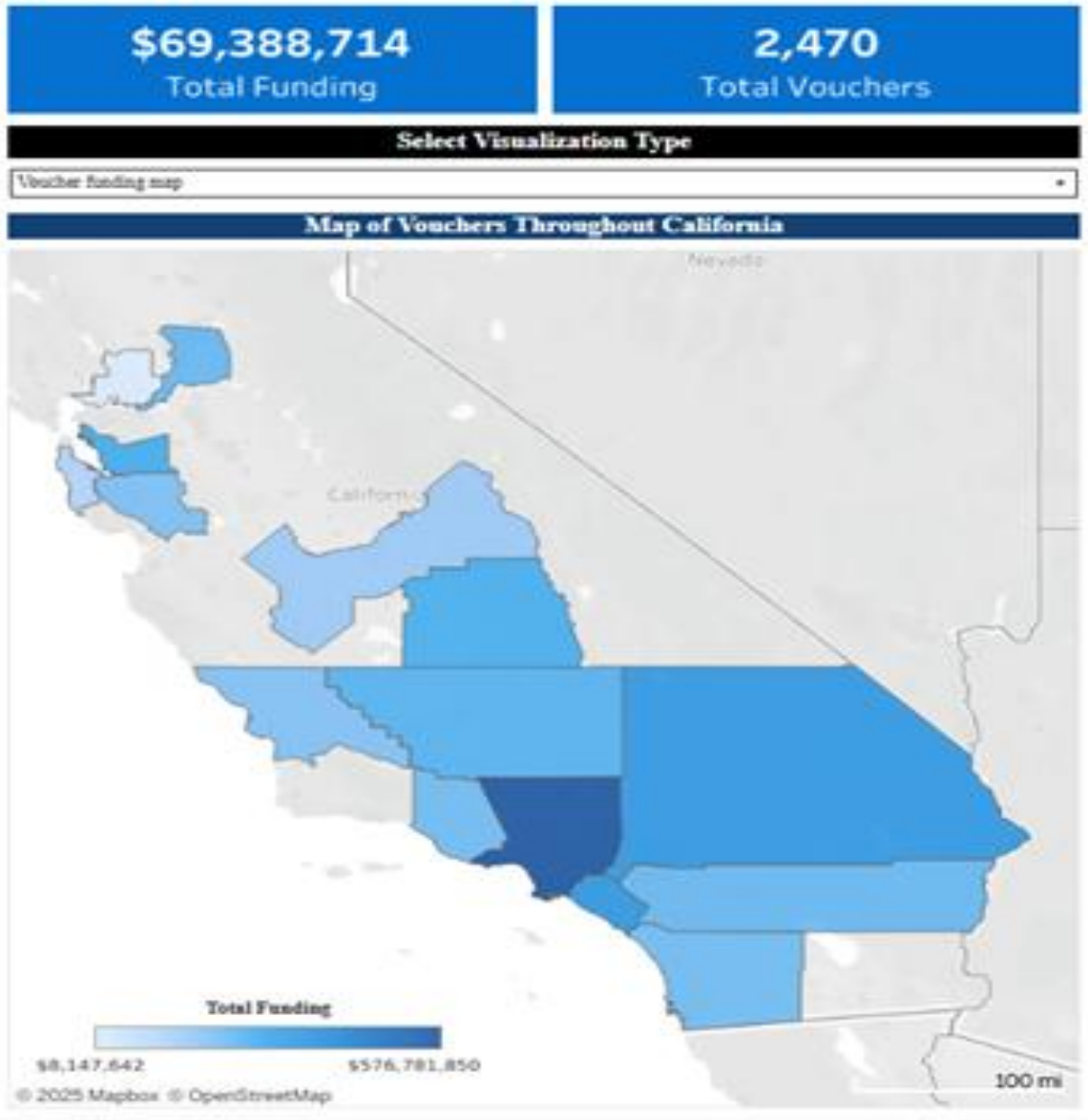
*HVIP: California's Clean Truck and Bus Voucher Incentive Project -$754 million awarded -2,000 fleets supported -10,000 clean trucks and buses deployed -340,000,000 miles driven *As of March 2025*

NGVs provide a huge opportunity to maximize investments in clean air. California's HVIP funding highlights the missed opportunity and points to the need for change.

HVIP Battery Electric through 3/2025



HVIP Natural Gas through 2019



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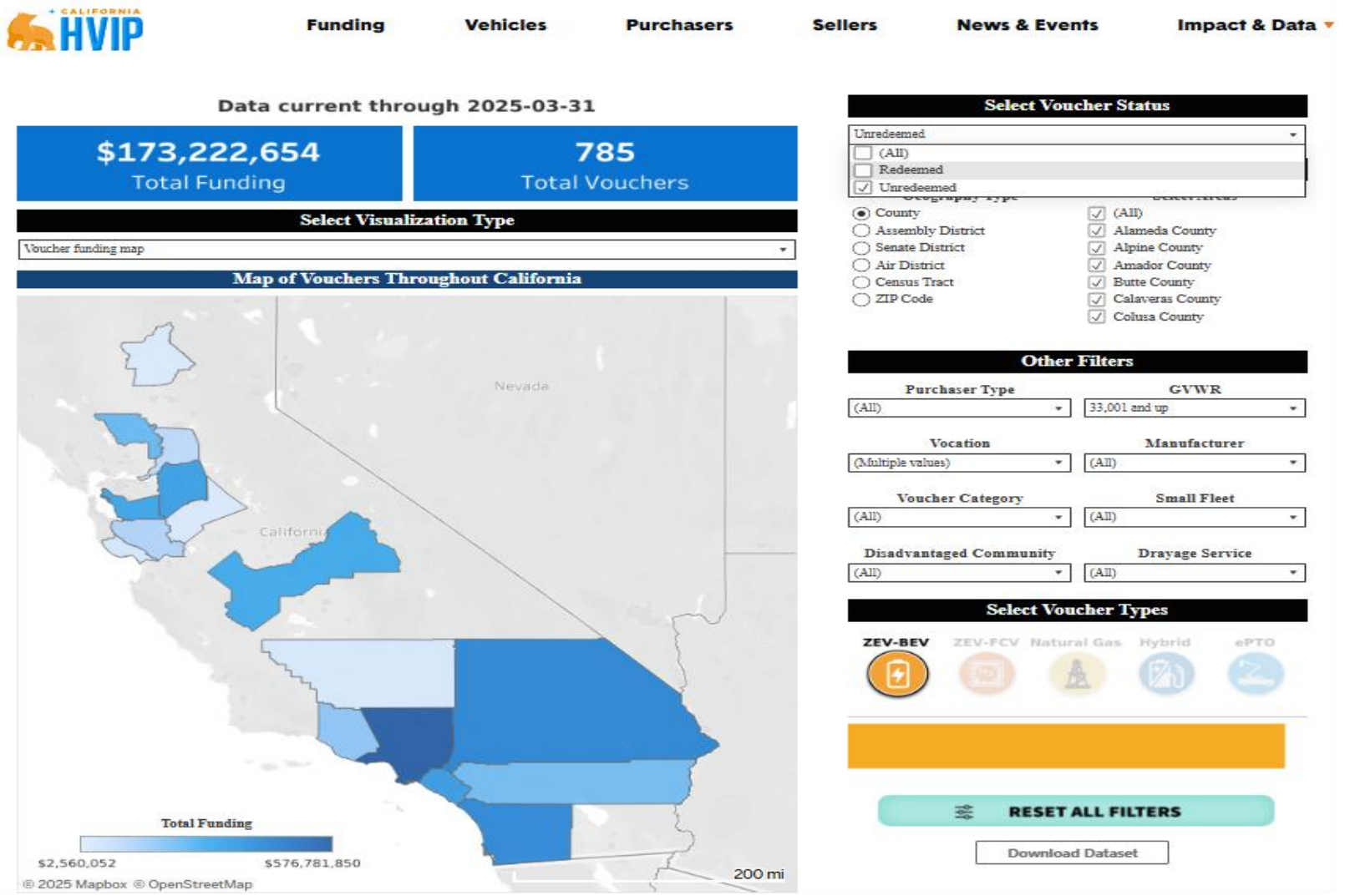
Going forward, California continues to miss out on a huge opportunity.

A total of $173 million in unredeemed awards currently is allocated in the Class 8 Tractor/Class 8 Refuse Truck categories.



Breaking down HVIP numbers: NG trucks provide a significant advantage

Class 8 Truck Tractor and Class 8 Refuse

Class 8 Truck Tractor	Funding	Trucks Deployed	$Vehicle	NOx Exhaust (lb)	PM2.5 Exhaust (lb)
Old Diesel (CYs pre2013)				771.13	5.53
Natural Gas	$34,201,000	733	$46,658.94	47,584	335
Electric	$88,294,967	519	$170,125.18	0.00	0.00
NG emissions reduced				517,653	3,722
Electric emissions reduced				400,216	2,872
NG Reductions $lb				$66	
Electric Reductions $lb				$221	
Unredeemed EV$ Benefit	$169,007,154	754	$224,147.42	581,431	4,173
NG Potential Trucks @ $75K Per Truck		2,253	$75,000.00	1,591,396	11,442
Class 8 Refuse Trucks	**Funding**	**Trucks Deployed**	**$Vehicle**	**NOx Exhaust (lb)**	**PM2.5 Exhaust (lb)**
Old Diesel (CYs pre2013)				2262.13	2.33
Natural Gas	$22,047,376	1137	19,390.83	14,495	154
Electric	$1,470,000	10	147,000.00	-	-
NG emissions reduced				2,557,551	2,497
Electric emissions reduced				22,621	23
NG Reductions $lb				$8.62	
Electric Reductions $lb				$64.98	
Unredeemed EV$ Benefit	$4,215,500	31	$135,984	70,126	72
NG Potential Trucks @ $50K Per Truck		84	$50,000	189,646	185

Breaking down HVIP numbers: NG trucks provide a significant advantage

Class 8 Truck Tractor

Class 8 Truck Tractor funding = $122.5 million

- **LESS FUNDING:** NG received over 50% less funding than BE ($34 million versus $88 million)
- **FEWER NG TRUCKS DEPLOYED:** Fleets still deployed 214 additional NG trucks than BE; 41% more
- **GREATER EMISSION BENEFITS:** NG delivered 117,000 more pounds of annual NOx emission reductions and 849 more pounds of annual PM2.5 emission reductions.
- **MORE COST-EFFECTIVE:** NOx reductions delivered for $66 per pound (NG) versus $221 per pound (BE)

Unredeemed Class 8 Truck Tractor funding = $169 million

- **ALLOCATTED:** for 754 BE ($224,000/truck)
- **ALTERNATIVE:** could fund 2,253 NG ($75,000/truck) instead
- **LOST OPPORTUNITY:** would achieve 1.59 million pounds of annual NOx reductions (NG) versus 581,000 pounds (BE) – almost 3X more with NG

Note: Award years analyzed – 2017-2019 for natural gas (NG) and 2021-2024 for battery electric (BE)

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Breaking down HVIP numbers: NG trucks provide a significant advantage

Class 8 Refuse

Class 8 Refuse funding = $23.5 million

- **MORE COST-EFFECTIVE:** NOx reductions delivered for $8.62 per pound (NG) versus $64.98 per pound (BE)

Unredeemed Class 8 Refuse funding = $4.2 million

- **ALLOCATTED:** for 31 BE ($136,000/truck)
- **ALTERNATIVE:** could fund 84 NG ($50,000/truck) instead
- **LOST OPPORTUNITY:** would achieve 189,000 pounds of annual NOx reductions (NG) versus 70,000 pounds (BE) – 2.7X more with NG

Note: Award years analyzed – 2017-2019 for natural gas (NG) and 2021-2024 for battery electric (BE)

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Urban Emissions: Public Health Impacts

Breathing in particle pollution increases the risk of:

- **Asthma**
- **Lung Cancer**
- **Heart Disease**
- **Premature Death**

156.1 million

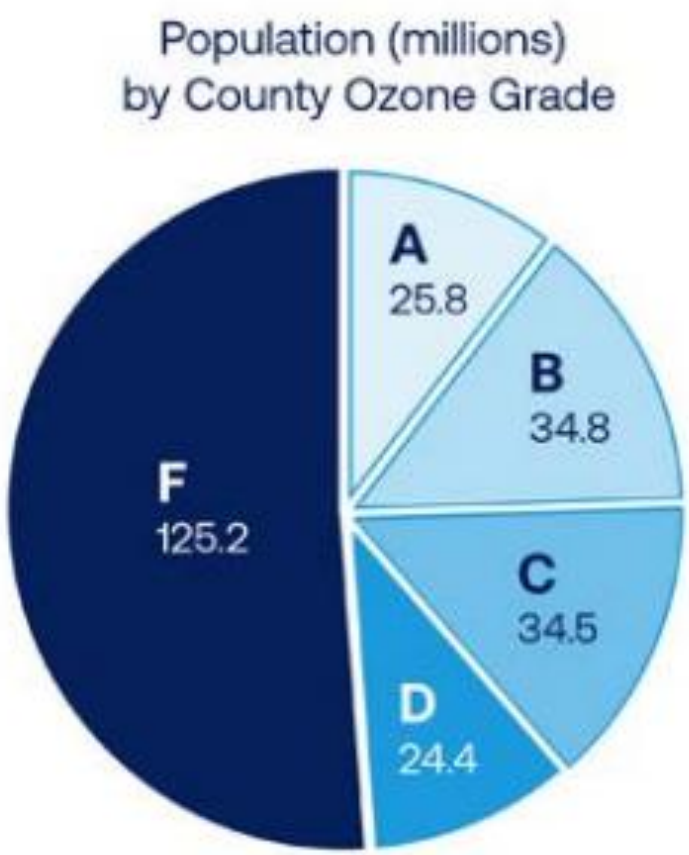
Americans live in areas with air that is unhealthy to breathe…

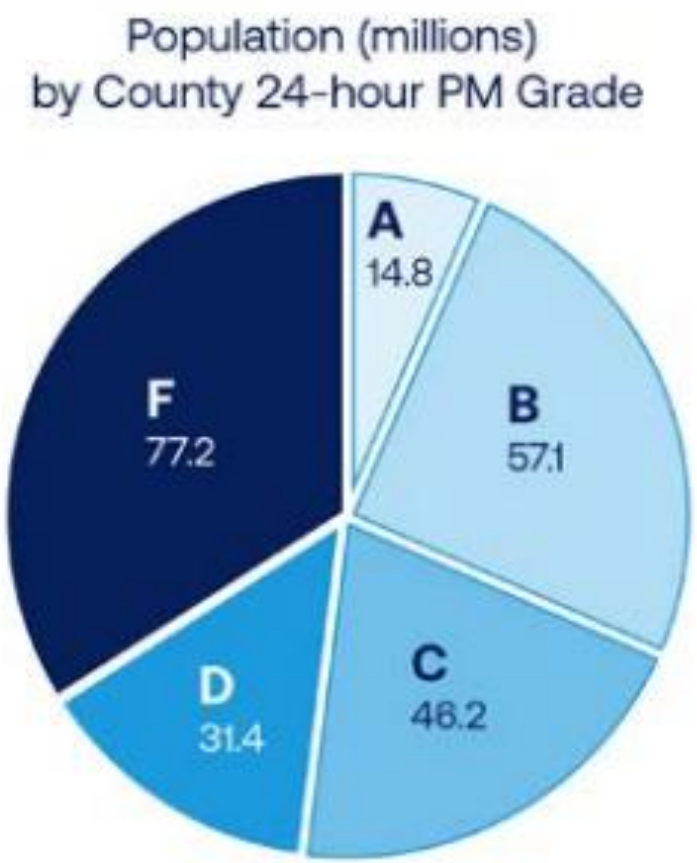
- **46% of all Americans**
- **25 million more than last year**

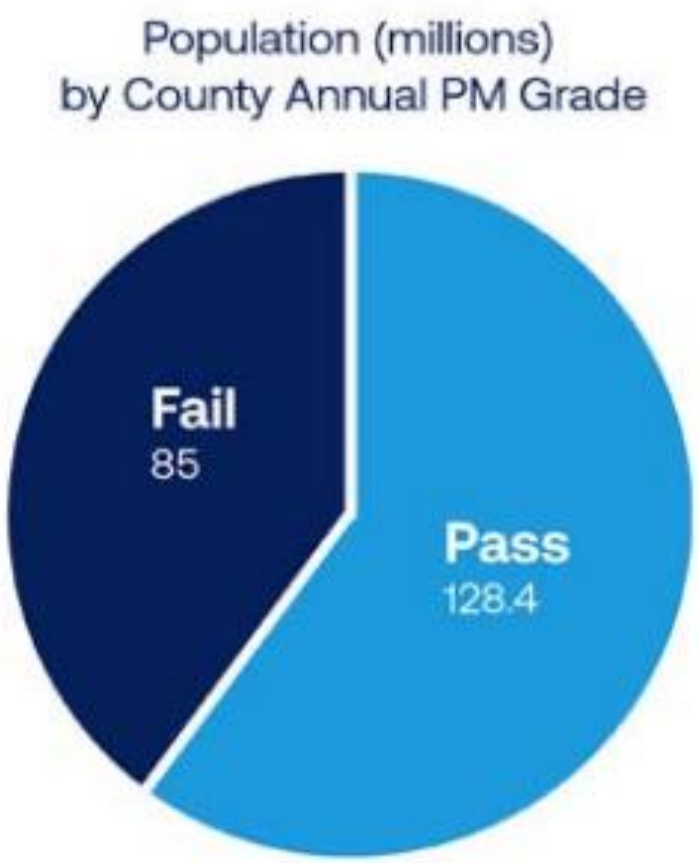
"Although people of color make up 41.2% of the overall population of the U.S., they are 50.2% of the people living in a county with at least one failing grade. Notably, Hispanic individuals are nearly three times as likely as white individuals to live in a community with three failing grades."

– American Lung Association, State of the Air 2025

2025 State of the Air Report







Source: American Lung Association, April 2025

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What if we listened to Wayne?

Replace Pre-2013 Diesel Class 8 Truck w/ NG	New\Displaced Trucks	NOx Exhaust (lb)	PM2.5 Exhaust (lb)
10% Annual New Class 8 Truck Sales	22,471		
Annual Diesel Truck Emissions	22,471	17,328,249	124,369
New NG Trucks Emissions	22,471	1,458,778	10,271
NG Annual Emission Reductions		15,869,471	114,097
NG Benefits		**NOx Exhaust (lb)**	**PM2.5 Exhaust (lb)**
2022 Reductions (lb.)	22,471	15,869,471	114,097
2023 Reductions (lb.)	44,943	31,738,942	228,195
2024 Reductions (lb.)	67,414	47,608,413	342,292

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What if we listened to Wayne?

Compounded year-to-year over three years, natural gas would achieve 47.6 million pounds of NOx emission reductions and 342,000 pounds of particulate matter reductions.

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Public Health Benefits

329 premature deaths prevented

9,203 asthma attacks avoided

economic valuation of $2.6 billion

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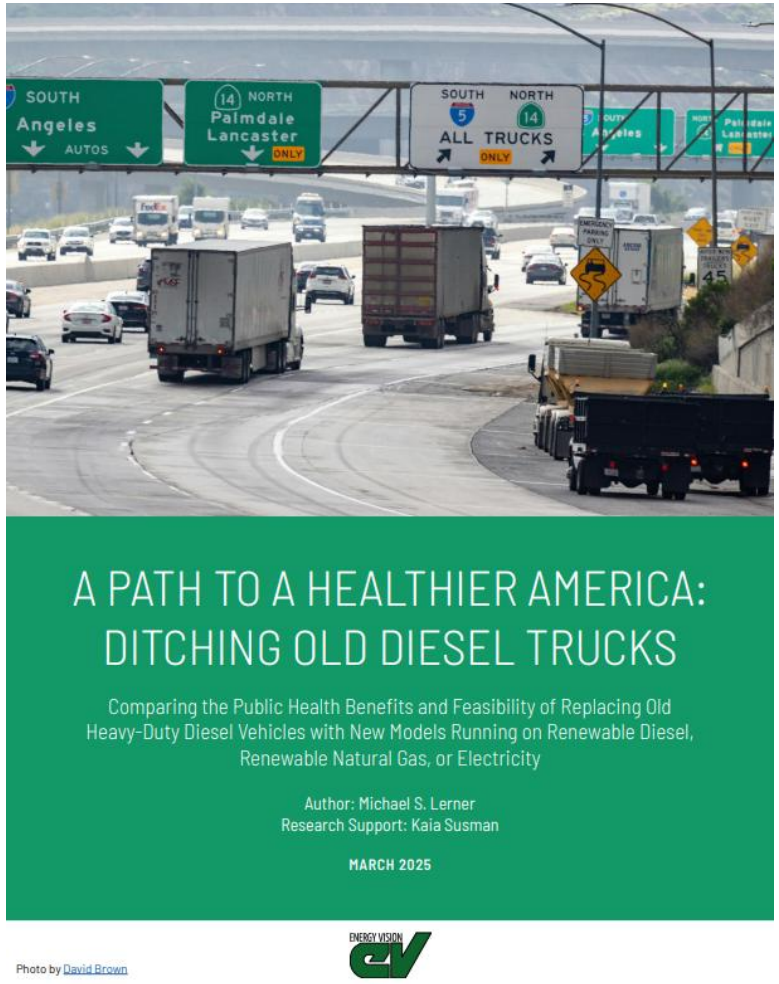
Energy Vision “Ditching Old Diesel” Report



Access at: energy-vision.org

Implementing the RNG option for just 130,000 trucks would prevent – every year:

- over **100 deaths**
- **230 hospital ER visits**,
- the onset of **asthma for 660 people**, and
- save an **average $2 billion** annually from avoided healthcare costs

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The RNG Vehicle Value Proposition

Reimagine Waste

Naturally occurring methane is a potent GHG and the second biggest contributor to human-caused global warming after CO2

RNG projects capture this methane and redirect it away from the environment, repurposing it as a clean, green energy source

Impact Immediately

Heavy-duty RNG-fueled trucks and buses are commercially available, scalable and on the road now

RNG vehicles offer a 1:1 replacement of diesel technology with similar power, torque, and range capabilities as incumbent regardless of terrain or weather

Maximize Investment

RNG transport and transit are considerably less expensive than battery electric or hydrogen options

Nationwide refueling infrastructure is in place, storm resilient, and growing; no massive buildout of charge connections or transmis-sion capacity is needed

Green Sustainably

Unlike certain renewables, RNG is easily stored, distributed, and replenished for motor fuel use

RNG is domestically, sustainably, and responsibly sourced, produced without child labor.

Amplify Impact

RNG holds a lower carbon intensity than on-road vehicle fuel from renewable electric derived from solar or wind

RNG motor fuel use has been verified in the State of California as carbon-negative

RNG is zero-emission equivalent when it comes to smog-forming tailpipe pollutants like NOx

Big Trucks = Big Impact: replacing one aging diesel truck with one new natural gas-powered truck is the clean air equivalent of remov-ing 119 cars from our roadways

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