Tampering & Aftermarket Defeat Devices

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Presentation with Ozone Transport Commission and
Mid-Atlantic Regional Air Management Association
August 13, 2019

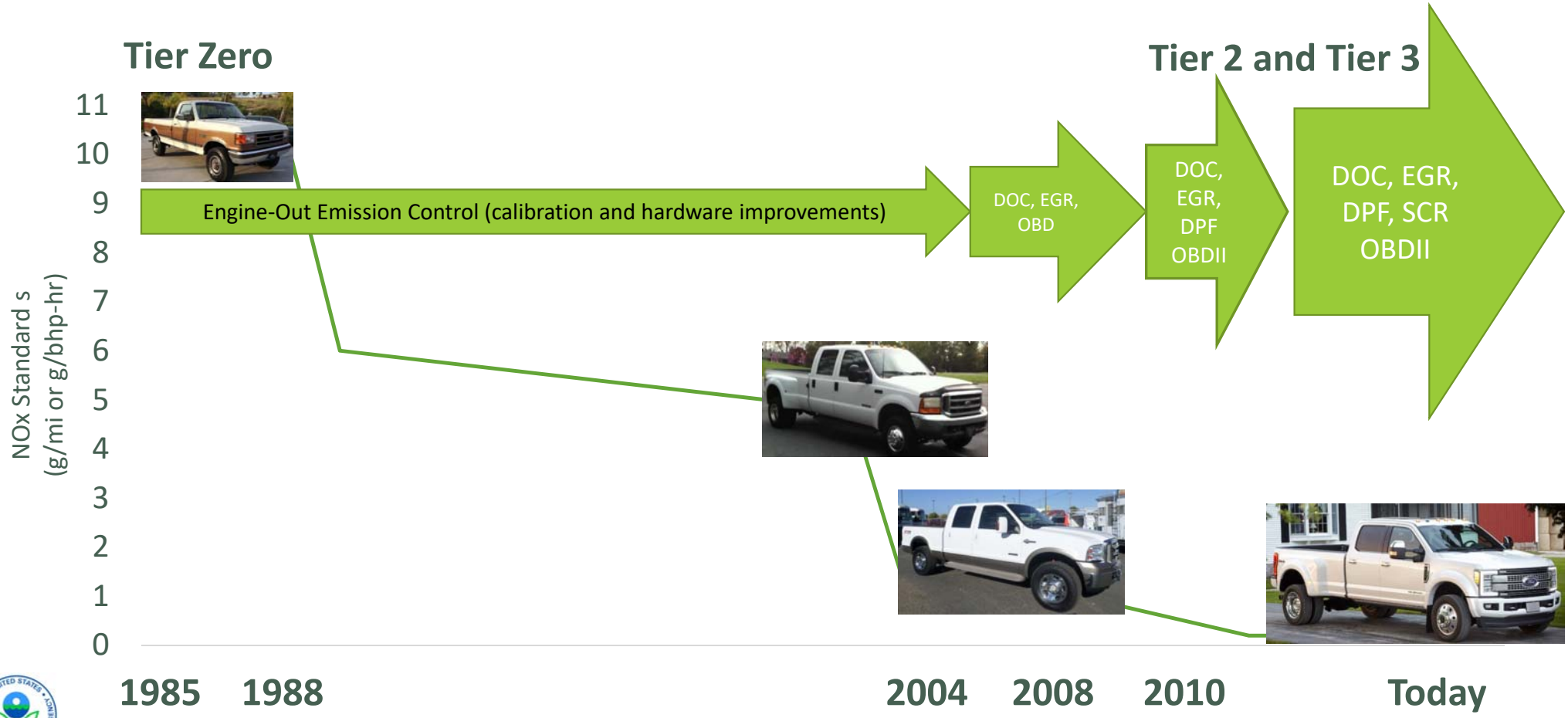
The Problem of Tampering & Aftermarket Defeat Devices

They cause excess emissions of NOx, PM and other pollutants.

They are prevalent nationwide. Contributing factors:

- tightened emission standards;
- steady demand from vehicle and engine owners who want to remove emissions controls (often for the purposes of increasing performance or avoiding maintenance costs);
- technological advancement of aftermarket electronic devices; and
- many who profit from manufacturing, selling, and installing aftermarket defeat devices.

NOx Emission Standards and Controls – Diesel Trucks

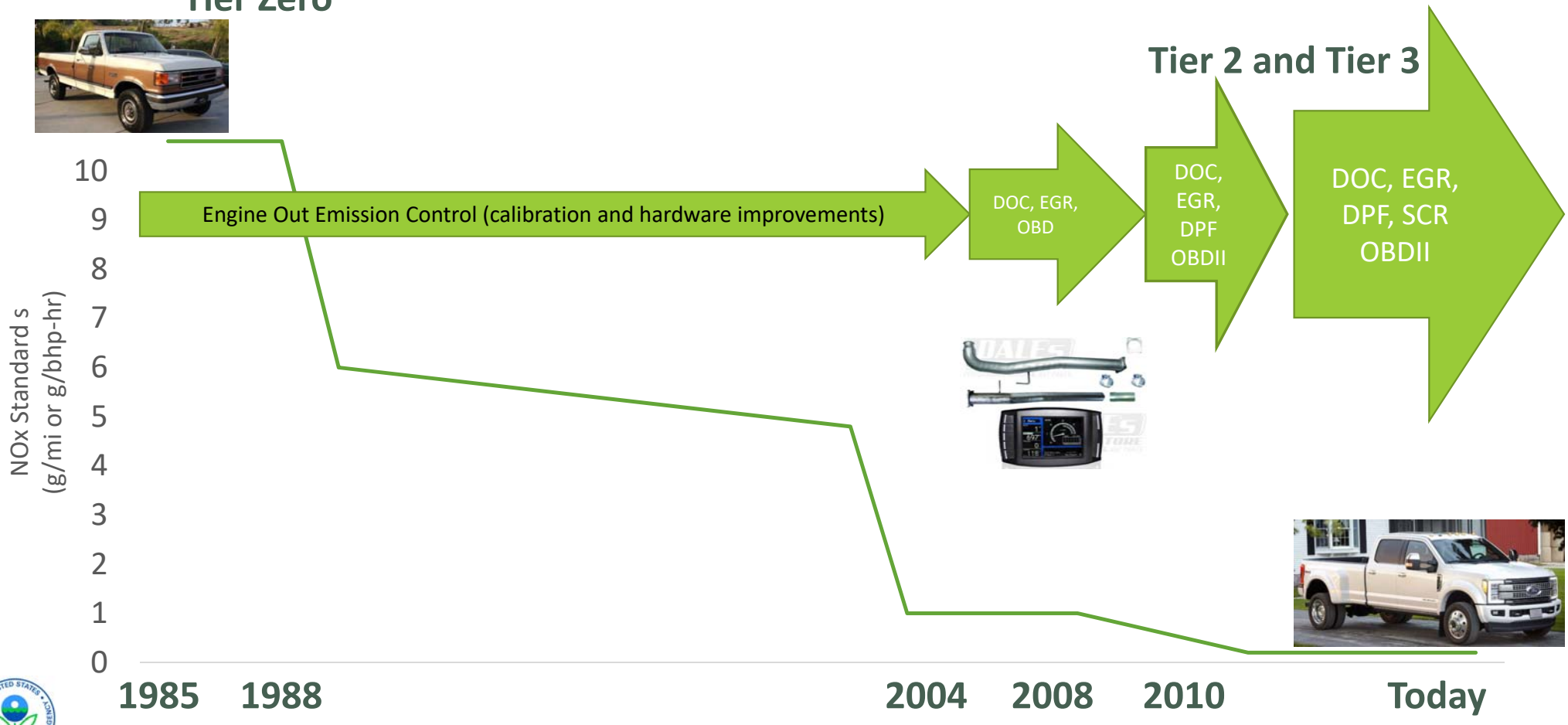


Source: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100OA01.pdf

NOx Emissions Increases Due to Full Delete

Tier Zero

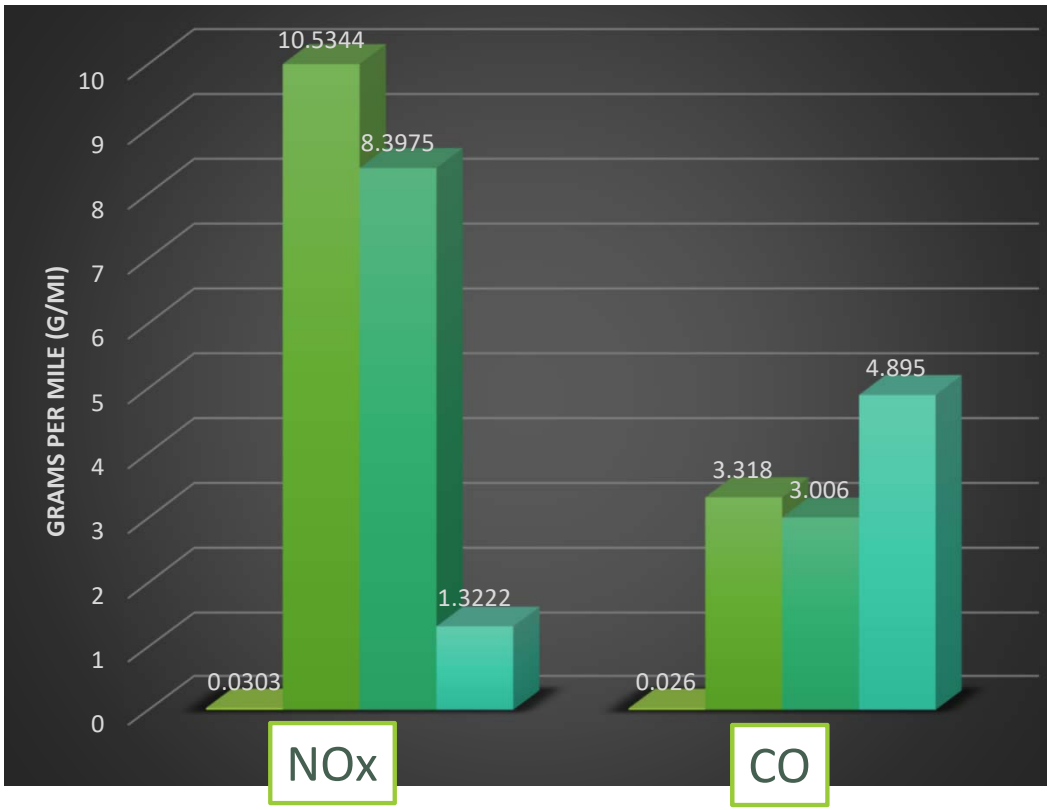
Tier 2 and Tier 3

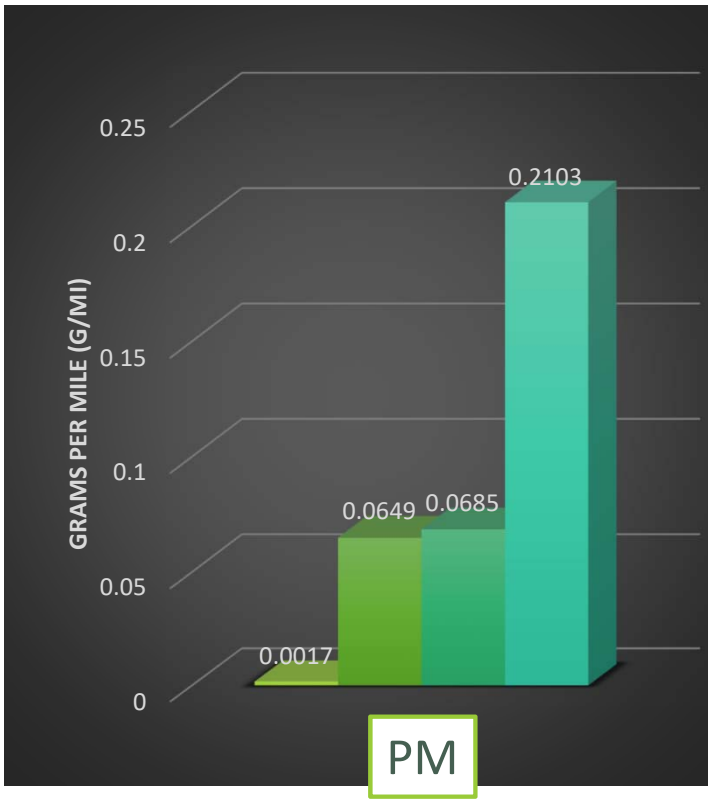


EPA Tuner Emissions Tests

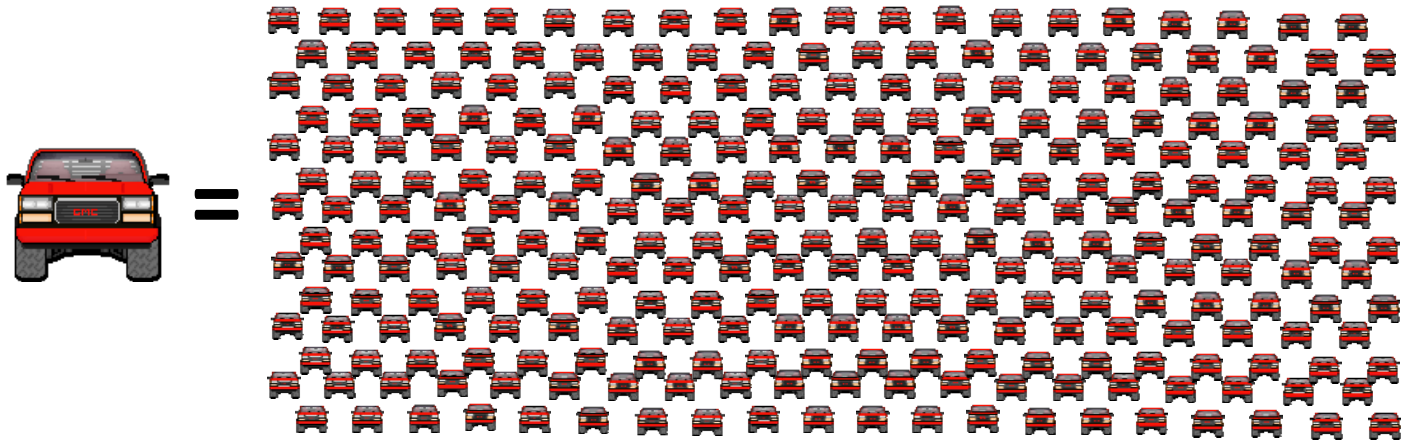
2011 Ford F-250 6.7 Diesel Powerstroke

- First test: stock
- Second and Third test: EGR electronically disabled by tuner. DOC, DPF, and SCR replaced with straight pipe and disabled by tuner in calibration.
- Fourth Test: EGR not disabled electronically by tuner. DOC, DPF, and SCR replaced with straight pipe and disabled by tuner in calibration.





Emissions Increase Due to Full Delete



NOx increased ~310x
NMHC increased ~1,140x
CO increased ~120x
PM increased ~40x

These test results show the increase in NOx, NMHC, CO, and PM when a tuner enables the full removal of emissions controls (i.e., “a full delete”). These tests were conducted without the SCR, DPF, DOC, and EGR emission controls.

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Nationwide?

- Hard to say
- Evidence from recent EPA investigations concerning diesel pickup trucks ("trucks") show cause for concern → →
- This is only the tampering the EPA has identified during recent investigations concerning diesel pickup trucks and is not an estimate of nationwide tampering rates.

- 400,000+ trucks have been deleted. That's ~10% of all trucks.
- 400,000+ tons of excess NOx from deleted trucks.
- Air quality impact equivalent to:
  - adding 7 million trucks to our roads,
  - doubling truck sales over the past decade.

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It’s not just pickup trucks . . .

- EPA investigations find tampering and aftermarket defeat devices for heavy-duty trucks, light-duty cars, agriculture equipment, forestry equipment, construction equipment, and more.
- Like diesel pickup trucks, tampering takes these vehicles and engines from today’s standards back to “tier zero.”

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Types of Defeat Devices:
Exhaust Gas Recirculation Delete Hardware

Includes:

- EGR block off plates
- EGR cooler deletes

Calibration modification typically required

- Disable OBD diagnostics
- Disable EGR operation

EGR electronic disablement (all EGR parts present and sensors plugged in)

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Types of Defeat Devices:
Exhaust Aftertreatment Delete Pipes

- "Straight" pipes, "Turbo back" pipes or "Downpipe back" pipes.
- Replaces stock exhaust system, including the necessary filters and catalysts.
- Calibration modification typically required to disable OBD diagnostics, sensors and other operations

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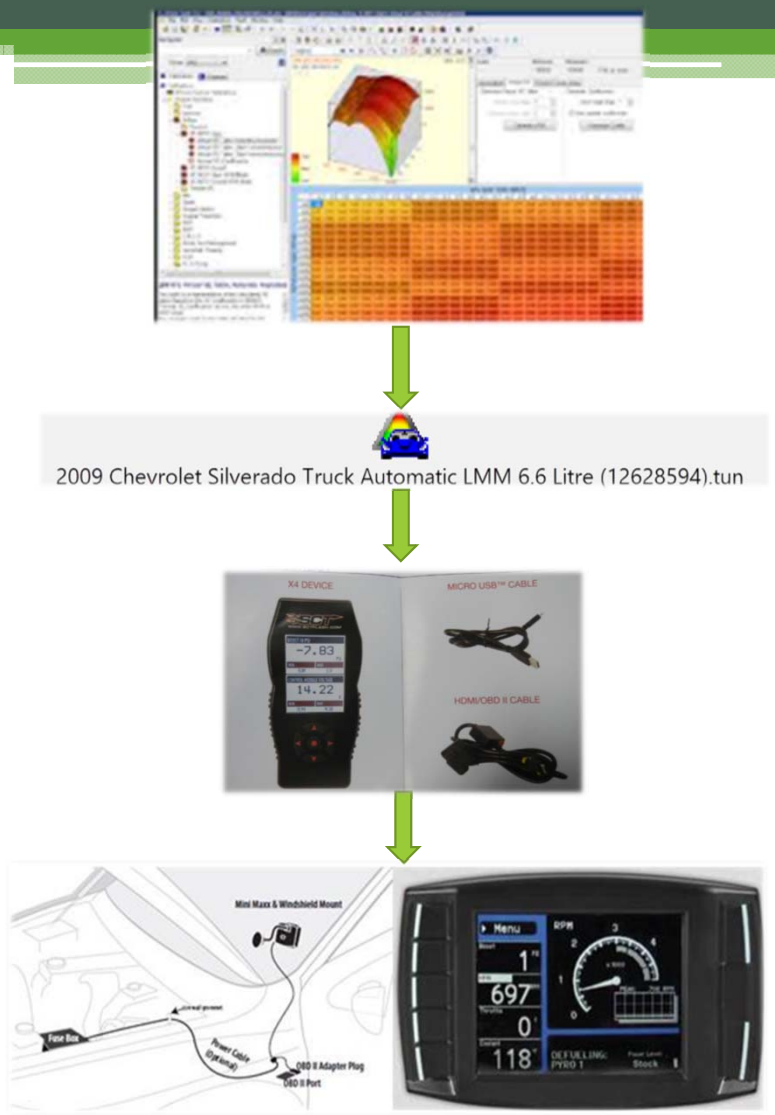
Types of Defeat Devices:

Tuners and Tunes

- Tuning = Hacking into and modifying software and calibration file(s)
- Typically installed using a “tuner” through the vehicle’s data link connector
- Tuning is required to
  - make engine operate after removal of EGR , filters and catalysts.
  - prevent OBD from activating the check engine light and/or limp mode
- Even with EGR , filters and catalysts intact, tuning can substantially increase tailpipe emissions of NOx



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Clean Air Act Civil Prohibitions: Defeat Devices

The following acts and the causing thereof are prohibited –

- For any person to manufacture or sell, or offer to sell, or install, a part or component for a motor vehicle, where
  - A principle effect of the part or component is to bypass, defeat, or render inoperative any emission control device, and
  - The person knows or should know that such part or component is being offered for sale or installed for such use or put to such use.

CAA § 203(a)(3)(B), 42 U.S.C. § 7522(a)(3)(B).

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Clean Air Act Civil Prohibitions: Tampering

The following acts and the causing thereof are prohibited –

- For anyone to remove or render inoperative an emission control component on a certified motor vehicle or engine prior to sale or delivery to ultimate purchaser, or
- For anyone to knowingly remove or render inoperative any emission control component on a certified motor vehicle or engine after sale and delivery to the ultimate purchaser.

CAA § 203(a)(3)(A), 42 U.S.C. § 7522(a)(3)(A).

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Clean Air Act Criminal Prohibitions

It is a crime to knowingly falsify, tamper with, render inaccurate, or fail to install any "monitoring device or method" required under the CAA.

CAA § 113(c)(2)(C), 42 U.S.C. § 7413(c)(2)(C).

Vehicle Onboard Diagnostics (OBD) are a "monitoring device or method" required by the CAA.

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National Compliance Initiative 2020-2023:
Stopping Aftermarket Defeat Devices for Vehicles and Engines

This NCI will focus on stopping the manufacture, sale, and installation of defeat devices on vehicles and engines used on public roads as well as on nonroad vehicles and engines.

This NCI aligns with the Agency Strategic Plan.

- ✓ "Improving Air Quality." This NCI will directly address huge sources of excess NOx and PM which appear to contribute to ozone nonattainment.
- ✓ "Enhanced collaboration with state[s] . . . using the full range of compliance assurance tools." EPA will engage with states to help get ahead of this problem.
- ✓ "Compliance with the Law . . . EPA will focus resources on direct implementation responsibilities and the most significant violations, . . . examples include the Clean Air Act mobile source program."

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National Compliance Initiative 2020-2023:
Stopping Aftermarket Defeat Devices for Vehicles and Engines

EPA is launching this NCI in response to calls from states.

"NACAA also offered that EPA should consider an additional NCI focused on compliance by mobile sources with applicable laws and regulations."
(NACAA comment on NCIs)

"AAPCA members have previously expressed concern to U.S. EPA OECA about emission systems tampering… U.S. EPA OECA should work with air agencies to prioritize curtailing the manufacture and installation of these devices, particularly in areas that do not currently meet the NAAQS for fine particulate matter and ozone."
(AAPCA comment on National Program Guidance)

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EPA Enforcement Is Building off Ongoing Success

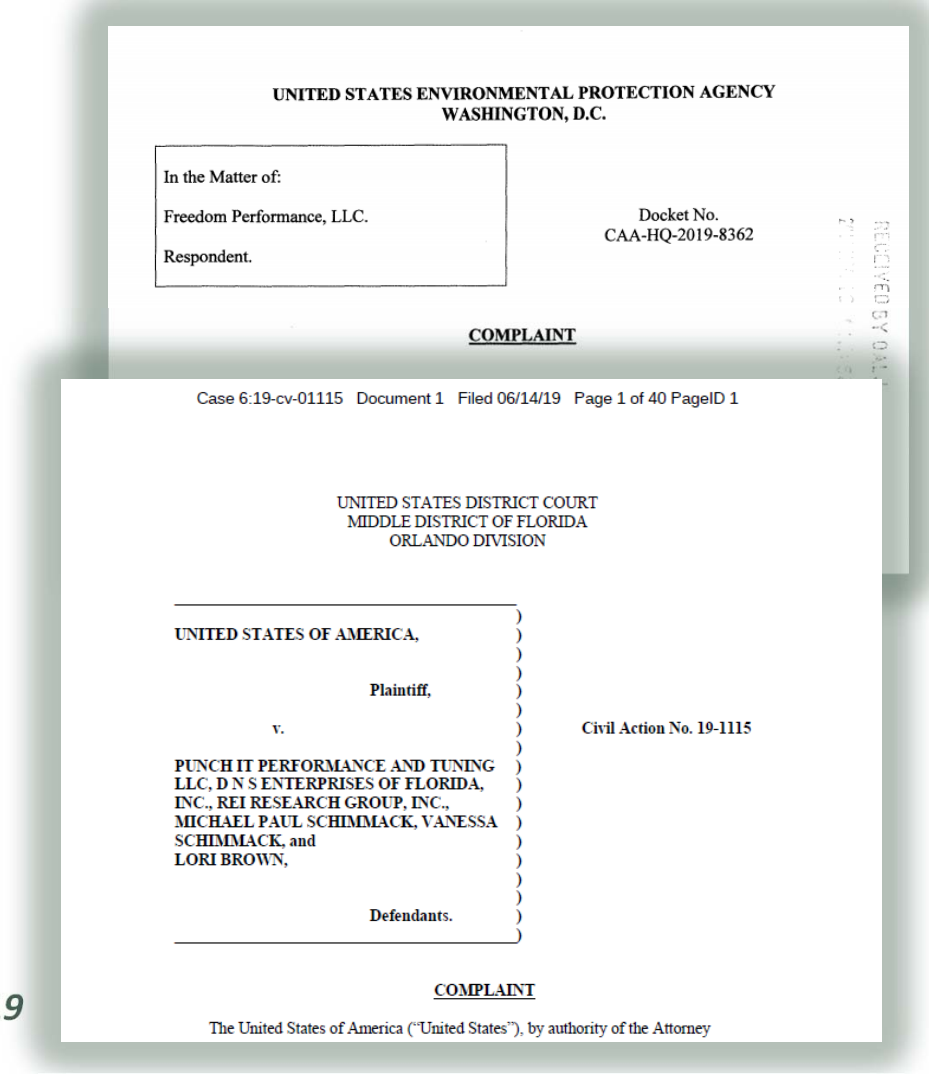
Since 2014:

- ✓40+ resolved civil cases
- ✓Addressing over 1 million aftermarket defeat devices

https://www.epa.gov/enforcement/clean-air-act-vehicle-and-engine-enforcement-case-resolutions

Focus on supply side:

- ✓National in scope, biggest impact
- ✓Parts manufacturers, retailers, commercial fleets, tampering shops



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.

In the Matter of:
Freedom Performance, LLC.
Respondent.

Docket No.
CAA-HQ-2019-8362

COMPLAINT

Case 6:19-cv-01115 Document 1 Filed 06/14/19 Page 1 of 40 PageID 1

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF FLORIDA
ORLANDO DIVISION

UNITED STATES OF AMERICA,
Plaintiff,
v.
PUNCH IT PERFORMANCE AND TUNING LLC, D N S ENTERPRISES OF FLORIDA, INC., REI RESEARCH GROUP, INC., MICHAEL PAUL SCHIMMACK, VANESSA SCHIMMACK, and LORI BROWN,
Defendants.

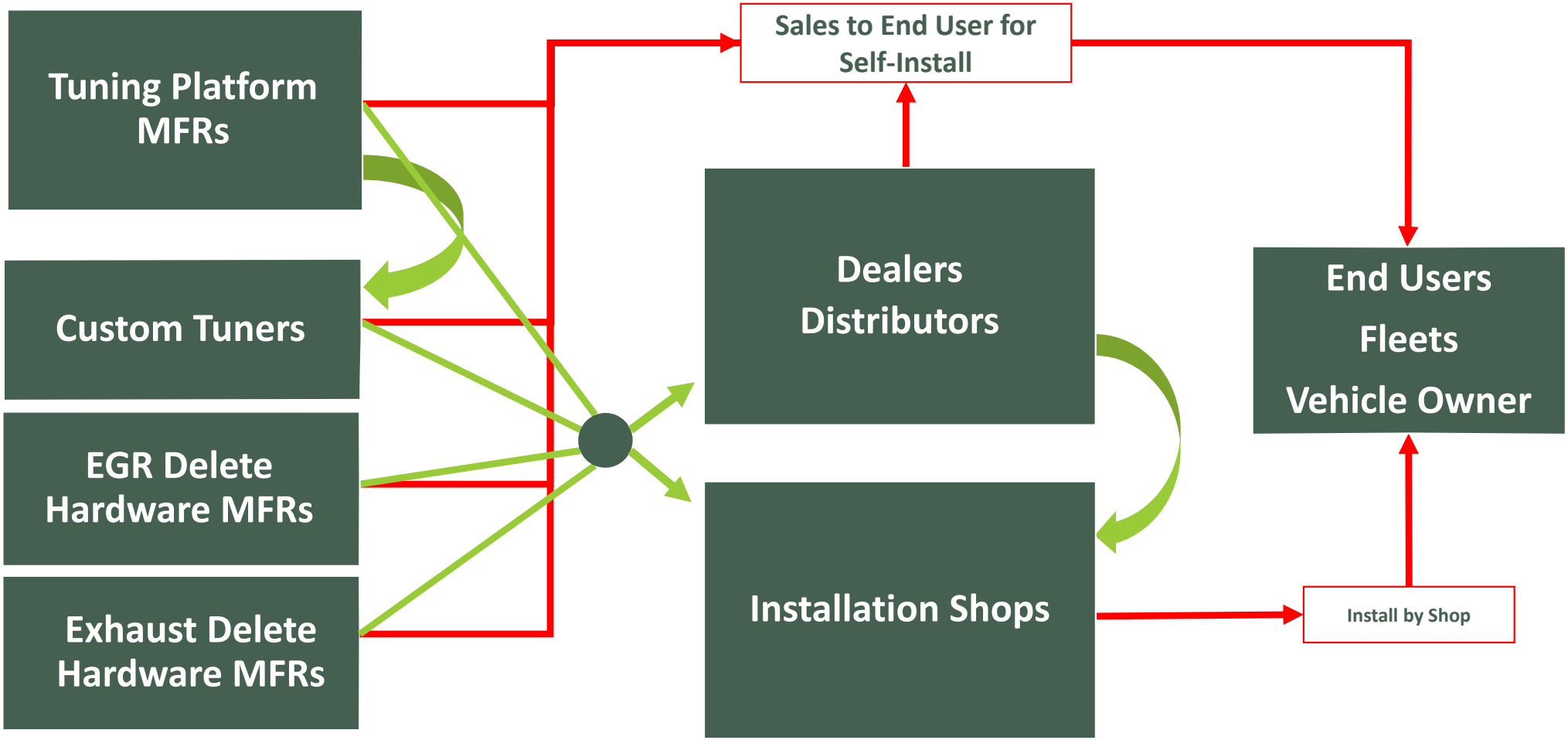
Civil Action No. 19-1115

COMPLAINT

The United States of America ("United States"), by authority of the Attorney

Tampering & Aftermarket Defeat Devices, USA EPA, August 2019

Defeat Device Industry Overview



Criminal Enforcement Results

Department of Justice

SHARE

U.S. Attorney's Office

Southern District of California

FOR IMMEDIATE RELEASE — Thursday, April 11, 2019

San Marcos Companies and Executives Charged with Tampering with Emission Control Devices on Diesel Truck Fleet

Assistant U.S. Attorney Melanie K. Pierson (619) 546-7976

NEWS RELEASE SUMMARY – April 11, 2019

SAN DIEGO – A federal grand jury in San Diego today returned a six-count indictment charging three San Marcos companies, two managers and a technician with various felonies related to tampering with emission control devices on heavy-duty diesel trucks.

Diamond Environmental Services LP, Diamond Maintenance Services, LLC and Diamond Solid Waste, Inc. (collectively "Diamond") of San Marcos, California, plus owner and manager Arie Eric De Jong III, manager Warren Van Dam and technician Jorge Leyva Rodriguez of ECM Diesel Programming were charged with conspiring to manipulate the electronic control module (ECM) on Diamond's fleet of heavy duty diesel trucks. The alleged manipulation was designed to disable the monitoring system that would

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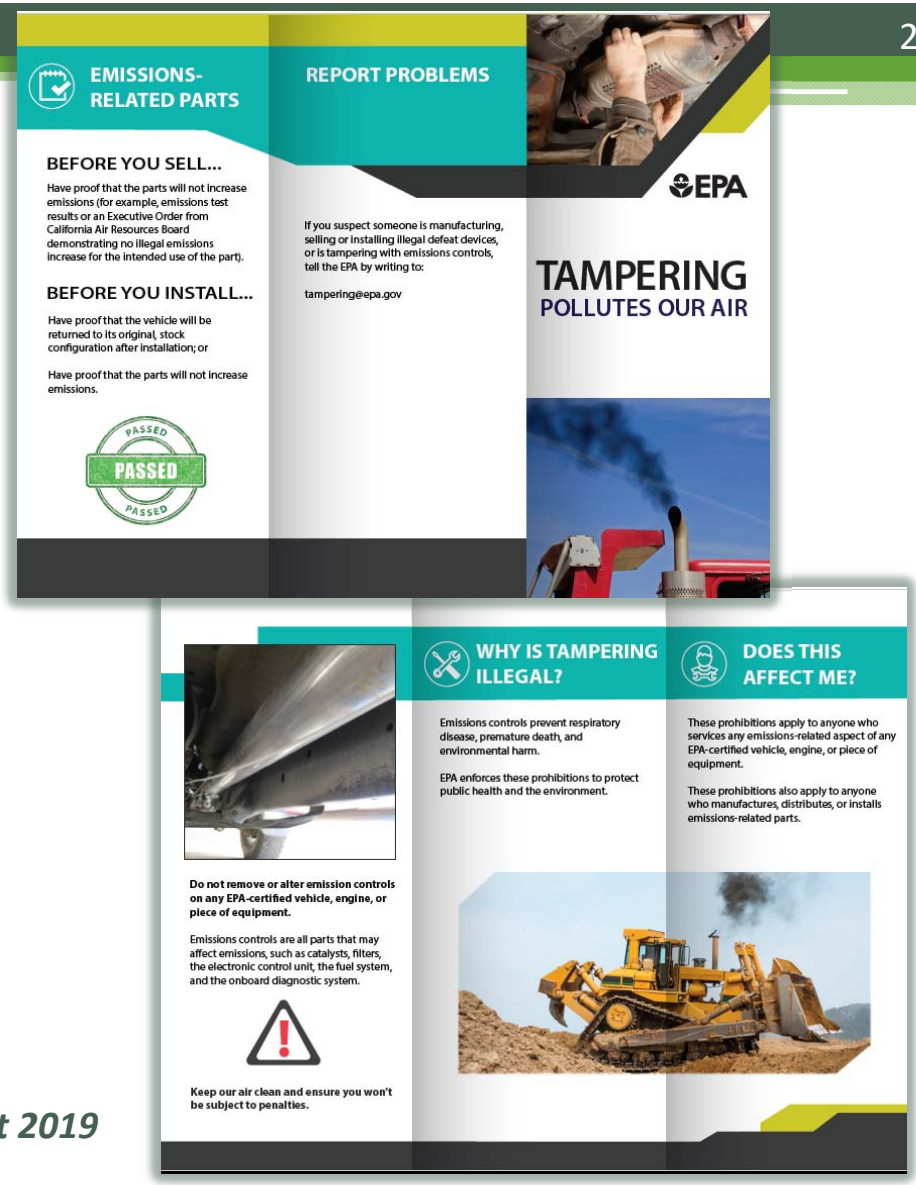
EPA Compliance Assistance

Outreach and education are needed for awareness.

Compliance assistance largely based on EPA civil enforcement policy:

- ✓ enforcement discretion, not a regulation, and creates no legal obligations
- ✓ outlines steps companies may take to ensure they do not become subject to enforcement
- ✓ EPA does not preapprove aftermarket products



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What drives demand?

Better power
Better Fuel Economy
Customization
"Rolling Coal"
Avoided downtime
Avoided maintenance

All at the expense of emissions

"The Livewire TS unlocks your vehicle's hidden performance by recalibrating your vehicle's computer for Maximum Horsepower & Torque, Increase Throttle Response, Firmer Shifts and even Increased Fuel Mileage."
– Punch-It Performance Advertisement

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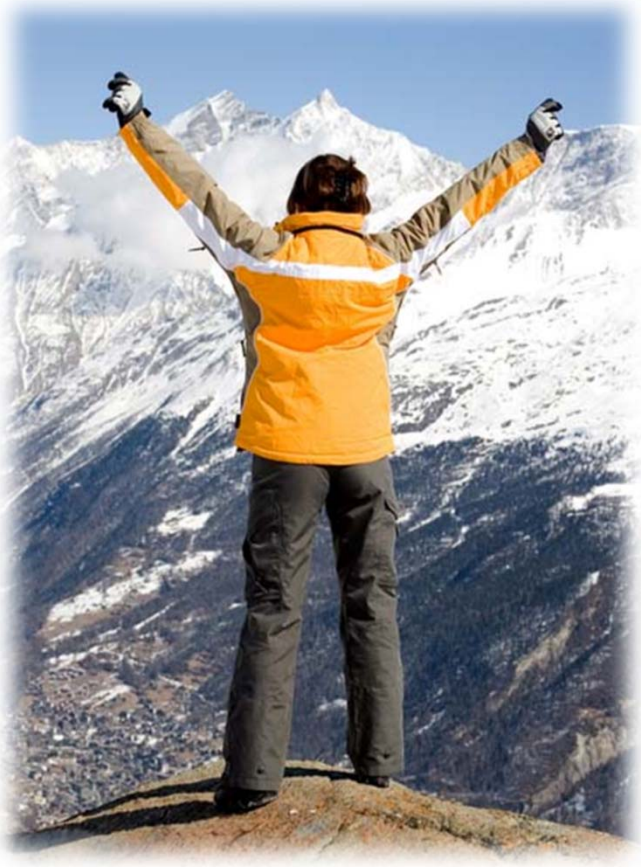
State Complement to Federal Efforts: Curtail Demand

Enforcement of the CAA prohibitions on tampering and aftermarket defeat devices is not delegated to the states. But many states have laws:

- ✓Prohibiting tampering
- ✓Prohibiting operating tampered vehicles
- ✓Prohibiting dealers from selling tampered vehicles

States can curtail the demand for tampering and aftermarket defeat devices

- ✓Education and outreach
- ✓Preventing registration of tampered vehicles
- ✓Deterring vehicle dealers from buying tampered vehicles for resale



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